

Clemson University



3 1604 011 399 807

U.S. GOVERNMENT PRINTING

MARIETTA COLLEGE

LIBRARY.

No. 12604

hand Commissioner















# REPORT

OF THE

## COMMISSIONER OF GENERAL LAND OFFICE

TO THE

### SECRETARY OF THE INTERIOR

FOR

### THE YEAR 1869.



WASHINGTON.  
GOVERNMENT PRINTING OFFICE.  
1870.

IN THE SENATE OF THE UNITED STATES,

July 13, 1870.

*Resolved by the Senate, (the House of Representatives concurring,)* That there be printed, for the use of the Senate, three thousand extra copies of the Report of the Commissioner of the General Land Office for 1869, with accompanying maps, six thousand copies of the same for the use of the House of Representatives, and three thousand copies of the same for distribution by the Commissioner of the General Land Office; also five thousand copies of a condensed edition of the same with the connected map of the United States, for distribution through the State Department, of which three thousand shall be in German, one thousand in French, and one thousand in Swedish.

Attest:

GEO. C. GORHAM, *Secretary.*

---

IN THE HOUSE OF REPRESENTATIVES,

July 15, 1870.

*Resolved,* That the House concur in the foregoing resolution to print extra copies of the Report of the Commissioner of the General Land Office, with the following amendments: Strike out the words "accompanying maps," and insert "connected map of the United States."

Attest:

EDW. McPHERSON, *Clerk.*

---

IN THE SENATE OF THE UNITED STATES,

July 15, 1870.

*Resolved,* That the Senate agree to the amendment of the House of Representatives.

Attest:

GEO. C. GORHAM, *Secretary.*



# TABLE OF CONTENTS.

	Page.
Preliminary abstract.....	1
Aggregate disposal of lands during the fiscal year ending June 30, 1869.....	7
Westward extension of our civilization.....	8
Influence of foreign immigration.....	9
Outline of the rectangular system of survey.....	10
Method of surveying exteriors or township lines.....	13
Method of subdividing townships.....	14
Laws of property, pre-emption and homestead titles.....	18
Homestead statistics.....	21
Pre-emption and homestead rulings.....	23
Land grants in aid of popular education.....	25
Concessions in aid of internal improvements.....	29
Cities and towns on the public lands.....	30
Establishment, reopening, and changes of location of district land offices and the adjustment of boundaries of land districts.....	31
Accounts of receivers of public money, disbursing agents, surveyors general, and deputies.....	32
Fund accounts.....	33
Recommendations of the extension of the prohibition of acquisition of title to public lands be extended to all the employés of the land system.....	33
Repayment of purchase-money, &c.....	34
Inundated lands.....	35
Boundary between New Mexico and Colorado.....	37
Changes in the bed of the Missouri River.....	41
Mendocino Indian reservation, in California.....	43
Osage Indian lands in Kansas.....	44
Duty of the General Land Office in regard to individual Indian reservations.....	45
Foreign titles.....	46
Geological and mineral interests, geological cabinet of the General Land Office, metallic and non-metallic minerals.....	47
Proceedings to obtain title under the mining laws.....	56
Early proceedings under the mining statutes.....	58
Effect of local mining customs and laws.....	59
Status of agricultural lands in mining districts.....	60
Surveying instructions respecting mining claims.....	61
Fees of registers and receivers in mining claims.....	62
Size of mineral claims.....	63
United States railway system, origin of railways in England and America, railroads of the Atlantic slope, of the Mississippi Valley, transcontinental routes, railroad subsidies in lands and loans of public credit, statistics of railroad construction, travel, and traffic.....	64
Statistical notices of public land States and Territories:	
First division, Gulf States, including Louisiana, Mississippi, Alabama, Florida, and Arkansas.....	82
Second division, region of cereals, including Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Kansas, Nebraska, and Dakota Territory.....	109
Third division, mineral and grazing region, including Nevada and the Territories of New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, and Arizona.....	145
Fourth division, mineral, agricultural, fur, and timber region of the Pacific slope, including California and Oregon and the Territories of Washington and Alaska.....	184
Our national growth, influence in that respect of the public land system.....	207
Argument on the want of jurisdiction of the United States courts over matters pending before the executive departments, with correspondence.....	214
Suggestion of the establishment of a cabinet of sands, clays, &c.....	221
List of papers in the appendix.....	222
Appendix, general tables, reports of surveyors general, &c.....	225



Digitized by the Internet Archive  
in 2013



# REPORT

## OF THE

### COMMISSIONER OF THE GENERAL LAND OFFICE.

DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*

SIR: Pursuant to the Senate's resolution of July 28, 1855, the following is submitted as an abstract of the report of this office for the fiscal year ending June 30, 1869:

First. That system has extended to all the public-land States and Territories of the republic, except Alaska and Wyoming, in which the public-land system is not yet inaugurated. Surveying operations are intrusted to surveyors general in fifteen different surveying departments, each having a surveyor general, with corps of deputies. The disposal of the public domain is in charge of registers and receivers in seventy-three different land districts.

In Ohio, Indiana, Illinois, Michigan, Missouri, Alabama, Mississippi, Wisconsin, and Iowa, the surveys are completed, and archives transferred to the State authorities. The surveying service is in progress in Oregon, California, Nevada, Kansas, Nebraska, Minnesota, Louisiana, and Florida, and in the Territories of Dakota, Colorado, New Mexico, Utah, Idaho, Montana, Washington, and Arizona, the last-named being attached to the surveying district of California. The field service in Louisiana and Florida is now nearly completed. The policy of the government has always favored the rapid transfer of its proprietary interest to individual ownership. During the fiscal year ending June 30, 1869, advance in this respect has been reached by the disposal—

	Acres.
Second. For cash, with a small amount of military scrip..	2, 899, 544. 30
Location of bounty-land warrants.....	449, 780. 00
Homestead entries under acts of 1862, 1864, and 1866....	2, 737, 365. 05
By agricultural college scrip, under act of July 2, 1862....	352, 664. 86
Certified for railways and wagon roads under different acts of Congress.....	746, 769. 51
Approved to States as swamps, under acts of 1850, and selected as indemnity.....	455, 768. 49
Located with Indian scrip.....	24, 259. 76
<hr/>	
Aggregate disposal of land during the last fiscal year ending June 30, 1869.....	7, 666, 151. 97
<hr/>	

Being an increase over the fiscal year next preceding of over one million acres.

Third. The cash receipts for ordinary sales, pre-emption, (including a small quantity of military scrip received as money;) for the \$5 and \$10

homestead payments; for commissions on homesteads; fees for locating agricultural scrip and military bounty-land warrants; for fees on pre-emptions, donations, railroad selections; for certified transcripts, making an aggregate cash receipt during the said fiscal year ending June 30, 1869, of \$4,472,886 28, being an increase over the year next preceding of \$2,840,160 38.

These results show a gratifying increase in the number of freeholds by actual settlers. The policy of the land system tends to the diffusion of proprietary rights in the soil, thereby increasing the stability of the social system in the several communities of the west.

Fourth. Immigration.—The rapid extension of our western settlements, largely due to the influx of foreign immigration, shows that more than the usual proportion of the intelligent and moneyed classes of Europe have become interested in our extraordinary resources; the improved character of foreign immigration being due, it is believed, to the authoritative dissemination of official information in Europe respecting the landed interests of the republic. In addition to the enormous increase of societary movement from immigration, the direct contribution to our natural wealth in the form of active capital brought to this country merits attention. It is conceded that alien immigrants bring with them an average of sixty-eight dollars per head, and that at this rate the money thus imported from 1790 to 1860 would not be less than four hundred millions in gold.

Fifth. Sketches given of the United States surveying system, as inaugurated in 1785 and modified by successive congressional enactments, consisting of base lines, meridians, standards, parallels, guide meridians, township and section lines. The system extends through the public-land States and Territories, except, as aforesaid, Alaska and Wyoming, and has led to the establishment of twenty principal bases, and twenty-three principal meridians, the whole of the surveys resting on these bases and meridians, which govern and control all subdivisional extensions of the public lands, embracing—

Sixth. An aggregate area of acres ..... 1, 834, 998, 400

Seventh. There have been surveyed during  
the last fiscal year—acres ..... 10, 822, 896

Involving 40,849 lineal miles of surveying,  
measuring, and marking in the field. This  
added to the extent of prior surveys,  
amounts to—acres ..... 497, 744, 856

Requiring perambulations of surveyors,  
equal to 1,514,826 lineal miles, and  
making—

Eighth. A grand aggregate of ..... 508, 567, 752  
acres surveyed from the foundation of the system to the  
30th June, 1869, leaving—

Ninth. The unsurveyed area—acres ..... 1, 326, 430, 648

Tenth. The personnel of the surveying service during the last fiscal year, consisting of surveyors general, deputy surveyors, with their field parties, draughtsmen, clerks, and other employes in the surveying departments, is equal to one thousand persons engaged in the prosecution of the public surveys.

## LAW OF PROPERTY—PRE-EMPTION AND HOMESTEAD TITLES.

Eleventh. The principles considered upon which rights of property rest. Habits of settled industry and permanent residence shown to be essential to civilization. No nation has entered upon a career of civilization without abandoning the community of landed estate and admitting the rights of private property. Considerations presented as to the origin of the rights of property. A glance taken at the theories of leading publicists in this respect—Grotius, Puffendorf, Rutherford, and others. The fundamental principles of public order essential elements in the organization and administration of the public domain.

Twelfth. The general government has admitted the usufructuary Indian titles and extinguished them by purchase as westward expansion of civilization has rendered it necessary. It is a prominent feature in the legislative mind to favor a policy of transferring to individuals titles to the soil by the most speedy process. The anxious attention of our statesmen was occupied with the subject a whole year in framing the "ordinance" in that respect, which was the nucleus of the series of enactments intended to adapt the land system to the wants of successive periods of our history.

Thirteenth. Early legislation made liberal land appropriation as bounty to the military, indicating the nation's gratitude for their inestimable services, and provided for cash sales—the minimum price, after successive legislation, being placed at \$1 25 per acre, by the act of April 24, 1820.

Fourteenth. The act of 1807 declared it unlawful to make settlements on the public lands. Under the pressure of the great western movement Congress passed a series of pre-emption statutes, retrospective at first, and finally passed the prospective, permanent pre-emption act of 4th September, 1841. That act, however, with the law of 3d March, 1843, was restricted to *surveyed* lands. By certain acts of 1853 and 1854 the pre-emption system was still further enlarged, so that the title of settlers could have inception on lands before survey. These wise measures have opened avenues to independence and wealth to multitudes of individuals.

Fifteenth. Modifications to perfect pre-emption system recommended by admitting joint entries, in certain cases, to embrace the dwellings and valuable improvements of two or more grantees who had settled before survey and afterward were found on the same legal subdivision; also, in fixing specific limits as to time within which pre-emptors on unoffered land shall render proof and payment.

Sixteenth. Homesteads.—The disposal of lands as intended by the homestead laws. By act of June 26, 1866, the lands in Alabama, Mississippi, Louisiana, Arkansas, and Florida are restricted in disposal to homestead entries.

Since last report 2,737,365.05 acres have been disposed of under the homestead enactments, being an increase of 408,441.80 acres over the aggregate of the year next preceding. The total fees and commissions amounted to \$315,419 45, while the total expense of the General Land Office and of seventy-three district land offices did not exceed \$453,816 43.

Seventeenth. The conclusion is reached that, by the direct or indirect operations of the land system, 60,000 small farms, during the last fiscal year, have been added to the agricultural freeholds of the United States, being nearly double the number of land-owners in England, according to the British census of 1861. The pre-emption principle has been



applied to town sites, giving great facilities for building towns and cities on the public lands.

Eighteenth. If to the rural we add the urban proprietors, we have an aggregate of nearly five and a half millions of land-owners, about one in every eight of the population. History may be challenged for a parallel to these facts.

Nineteenth. Leading rulings presented under the pre-emption and homestead laws.

Twentieth. Land grants in aid of popular education, on the assumption that government, as the organ of society, is vested with the power to meet this social necessity. Hence, in the ordinance of 1785, the sixteenth section in every township was set apart for the endowment of schools. At a later period the grant has been duplicated by adding the thirty-sixth to the sixteenth section. While endowments have also been made for institutions of a higher grade, advancing still further in this noble policy, Congress, in the act of 1862, conceded to the States 30,000 acres for each senator and representative, under the apportionment of 1860, for the support of agricultural and mechanic colleges. Details given in regard to this measure.

Twenty-first. Concessions in aid of internal improvements; leading cases given, with the status of each under special grants.

Twenty-second. Cities and towns on the public lands. Town-site acts of March 2, 1867, and June 8, 1768, having given new impetus to the building of cities on the public domain, several rulings are presented. It is estimated that thirteen thousand towns, cities, and villages have been established on the public lands.

Twenty-third. The establishment and re-opening of land offices. Adjustment of boundaries of land districts. Land offices, pursuant to the President's order, have been removed from Omaha to West Point; Nebraska City to Lincoln; from Brownsville to Beatrice; and an additional office, at Grand Island, has been opened. Boundaries of the Aurora land district, in the States of Nevada and California, have been adjusted according to the lines of the public surveys. A land office at Los Angeles has been opened. The office formerly at Winnebago City, Minnesota, has been transferred to Jackson. Pursuant to act of 25th July, 1868, an office has been established at Alexandria, Minnesota.

Twenty-fourth. Accounts of receivers of public moneys and disbursing agents, surveyors general, and deputies, have all been adjusted to recent dates; measures taken to insure rigid responsibility and prompt deposits. Reference made to the inhibition as to all General Land Office employes being interested in any tract of public land, with recommendation that such inhibition shall be extended to all persons connected with the local land administration in the several States and Territories.

Twenty-fifth. Outline given of laws and regulations regarding repayment of public moneys in case of error in sale and change of entries.

Twenty-sixth. Suggestions in regard to inundated lands.

Twenty-seventh. Report of the steps taken to establish the boundary line dividing New Mexico from Colorado, with details of interest incident to the service.

Twenty-eighth. Report of the change which has taken place in the bed of the Missouri River, above Dakota City, in Nebraska.

Twenty-ninth. Details given as to the duties enjoined by law on the Commissioner of the General Land Office for the survey of Indian reservations; full report of proceedings had in that respect. Mendocino reserve restored to the masses of public land by act of July 27, 1868, and ordered to be surveyed and sold. The return of survey shows its

area to be 24,930.68 acres. Osage lands, acquired by treaty with the Indians September 29, 1865, being in the southern part of Kansas, embraces 4,041,937 acres—survey completed. Report made of the proceedings ordered in view of the joint resolution approved April 10, 1869.

Thirtieth. Patents in the aggregate have been issued by the General Land Office to individual Indian reserves for nearly three million acres, under treaty with the Shawnees, Kickapoos, Ottawas, Senecas, Kaskaskias, Peorias, Piankeshaws, Weas, Yanktons, Wyandotts, Sacs and Foxes, Chippewas, Stockbridges, Winnebagoes, Delawares, Omahas, Iowas, Kansas, Poncas, Pawnees, Pottawatomies, Miamis, New York Indians, Chocktaws, Creeks, Osages, Otoes, Cherokees, Quapaws, and mixed bloods.

Thirty-first. Individual titles derived from foreign governments prior to the acquisition by treaty of certain territories. The policy of the United States has been the most liberal in this respect. Such rights have been sacredly protected by this government, not only in regard to titles *in form*, but even including claims not resting on written title, where continuous actual settlement existed prior to change of government. The equitable rulings are given of our judicial tribunals in this respect, expansive enough to embrace every species of honest title.

Thirty-second. Report given of the geological and mineral interests of the United States, values indicated, and immense wealth of the republic shown in this respect.

Thirty-third. The proceedings indicated by which claimants may obtain mining titles under the acts of Congress of July 20, 1866; all the steps to be taken in the consideration of such interests are plainly shown.

Thirty-fourth. The railway system of the United States described; its inception, progress, and expansion, with results, present and anticipated, to the civilization and prosperity of the American people. Full details given.

Thirty-fifth. Classification of the several States and Territories according to their geographical position and special adaptability to staple products.

*First division.*—Region of the Gulf States, specially adapted to the culture of cotton, sugar, rice and semi-tropical fruits, in addition to the cereals, esculents, and fruits of other sections, embracing the public land States of Louisiana, Mississippi, Alabama, Florida, and Arkansas. Details given in regard to said States, quantity of public land undisposed of in each, with incidental remarks in regard to adjoining States not in the public domain.

*Second division.*—Region of cereals, esculents, fruits, and other products indigenous to the temperate zone. Ohio, Indiana, Illinois, Michigan, and Wisconsin, on the east side of the Mississippi River; Missouri, Iowa, Minnesota, Kansas, Nebraska, and Dakota, west of that river. Details presented as to area, resources of each of these divisions, the quantity of land there undisposed of being shown.

*Third division.*—Mineral, grazing, and vine-growing region, embracing New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, and Nevada. Similar particulars to those above indicated being given in regard to each of them.

*Fourth division.*—Agricultural and mineral region of the Pacific coast, consisting of California, Oregon, Washington Territory, and Alaska; area, resources, and progressive development of each indicated.

RESULTS OF THE PUBLIC-LAND SYSTEM, AND FACTS PRESENTED AS  
TO OUR TRADE.

The annual report is accompanied by reports of surveyors general of the field operations. Maps of the public-land States and Territories have been prepared; also connected map of the United States, showing the extent of public surveys, localities of land offices, and surveyor generals' offices, railroads, and other topographical characteristics of interest, and map of the world on Mercator's projection, indicating routes of the commerce of the globe.

There is also with the report a tabular statement, showing the public lands sold, entered under the homestead laws, and located with agricultural college scrip; the cash, bounty-land scrip, and agricultural college commissions; homestead payments, and commissions for the first half of the fiscal year; also a statement showing like particulars for the second half of the fiscal year ending June 30, 1869.

Summary for the fiscal year ending June 30, 1869, showing the number of acres disposed of for cash, and various other heads.

Statements showing the quantity of swamp selections, for the year ending June 30, 1869, for the several States, under the acts of 1849, 1850, and 1860; also, statements showing the quantity approved and the quantity patented to the several States, for the same period, under said acts, with the quantity certified to Louisiana under the act of 1849.

Statement of selections, by several States, under the internal improvement grant of 1841, up to the 30th of June, 1869.

Exhibit of bounty-land business under acts of 1847, 1850, 1852, and 1855, up to the 30th of June, 1869.

Statement showing the selections, by certain States, of land within their own limits, under agricultural and mechanic acts of 1862, 1864, and 1866; also the locations made with scrip under said acts.

Statement exhibiting land concessions, by act of Congress, for railroad and wagon-road purposes, from the year 1850 to June 30, 1869.

Statement exhibiting land concessions, by act of Congress, to States, for canal purposes, from the year 1827 to June 30, 1869.

General tabular statement, showing the area of the several States and Territories containing public lands, the quantity of lands disposed of, by sale or otherwise, in each, up to the 30th of June, 1869, and the quantity of land remaining unsold and unappropriated at that date in the several States and Territories.

Historical and statistical table of the United States of North America.

Estimate of the expenses for this office, for the district land offices, and for the surveying department, for the year ending June 30, 1871.

A paper presenting the Commissioner's views as to the relative powers of the Executive and judiciary in regard to issues in the administration of the public lands.

Respectfully submitted.

JOS. S. WILSON, *Commissioner*.

Hon. J. D. COX, *Secretary of the Interior*.

---

DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*

SIR: The administration of the public-land system during the fiscal year ending June 30, 1869, has been extended to all the public-land States and Territories of the republic except Alaska and Wyoming, in



which two Territories that system has not yet been inaugurated, no authority of law having yet been conferred on the subject.

Operations pursuant to land legislation have been conducted under the direction of two classes of functionaries: first, surveyors general, aided by corps of deputies of professional skill in fifteen surveying districts; second, by registers and receivers in seventy-three land districts. To the former class of officials is intrusted the extension of the public surveys over the entire area of the public domain.

In Ohio, Indiana, Illinois, Michigan, Missouri, Arkansas, Alabama, Mississippi, Wisconsin, and Iowa, the entire surveying service has been completed. Accordingly the records of former surveyors general have been placed in the archives of the aforesaid States, respectively. Pursuant to acts of Congress approved June 12, 1840, and January 22, 1853, (Statutes, vol. 5, page 384, vol. 10, page 152,) surveyors general are still under appointment in the States of Oregon, California, Nevada, Kansas, Nebraska, Minnesota, Louisiana, and Florida, and in the Territories of Dakota, Colorado, New Mexico, Utah, Idaho, Montana, and Washington, Arizona being attached to the surveying district of California. In several of these departments the work has been nearly completed. During the past fiscal year surveys have been extended over 10,822,812 acres.

To the second class of public officers referred to is committed the immediate disposal of the public lands, after survey, under the various enactments of Congress. The policy of the government has always contemplated a rapid transfer of its proprietary title to private ownership; each successive phase of our national development giving rise to an increased liberality in the execution of this high trust, necessarily enlarging the details of the system. The variety of the methods adopted from time to time for the disposal of the national territory is partially illustrated in the following statement of the public lands disposed of during the year ending June 30, 1869:

	Acres.
Cash sales, including a small amount of military scrip...	2, 899, 544. 30
Locations of military bounty-land warrants.....	449, 780. 00
Homestead entries under the acts of 1862, 1864, and 1866..	2, 737, 365. 05
Locations of agricultural college scrip, under act of July 2, 1862 .....	352, 664. 86
Certified to railways and wagon roads, under various acts of Congress.....	746, 769. 51
Acres approved to States as swamp land, under act of Sep- tember 28, 1850, 451,295.30, and selected as indemnity for lands in place, covered by adverse rights, 4,473.19; total.	455, 768. 49
Locations of Indian scrip.....	24, 259. 76
Aggregate disposal during the year.....	<u><u>7, 666, 151. 97</u></u>

Showing an increase, as compared with the fiscal year next preceding, of over one million acres.

The cash receipts during the same period for ordinary sales and pre-emptions, including a small quantity of military scrip received as money; for the \$5 and \$10 homestead payments; for commissions on homesteads; for fees in the location of agricultural college scrip; for same in the location of military warrants; for fees in pre-emption cases, on donations on railroad selections, and on certified transcripts, under the acts of 1861 and 1864, make an aggregate received during the year

terminating the 30th of June last, of \$4,472,886 28, an increase over the year preceding of \$2,840,140 38. From the returns, so far as received, it is estimated that for the quarter ending 30th September, 1869, there have been taken by cash sales, bounty-land locations, homestead entries, and agricultural college scrip, about one million seven hundred thousand acres, and that the cash receipts for that quarter for sales and warrant fees compare well, and reach in the aggregate nearly a million dollars.

The locations of military bounty-land warrants and of agricultural college scrip during the aforesaid fiscal year ending June 30, 1859, exhibit a decrease as compared with the year preceding, while the other items present a marked advance, especially the homestead entries and cash sales, the latter embracing more than three times the quantity sold during the fiscal year ending June 30, 1868, and the total quantity disposed of is greater than any previous fiscal year since 1860.

From the data above presented it is evident that American civilization is expanding at an accelerating ratio over the continent. The very large advance in the homestead, pre-emption entries, cash sales, and military bounty-land warrant locations indicates a gratifying increase in the number of freeholds, being mostly appropriated by actual settlers of small farms, generally not exceeding one hundred and sixty acres each. The land concessions under grants for railroads, so far as it is possible to gather from public information, exhibit a tendency also to subdivision of proprietorship. The experience of the world has shown that such tendencies are in the direction of a normal civilization, by enlarging the number of persons having a landed interest in the preservation of social order.

Temporary causes, it is true, have, during the last three years, stimulated the westward movement of our population, as shown by the increased annual appropriation of the public domain by private parties. Inactivity of general business, and partial depression in several branches of manufacturing industry in the older States, have made available a considerable amount of capital and labor for reinvestment in the younger landed States and in the Territories. The ultimate result, however, cannot fail to be beneficial. In the first place, individuals are induced to improve their circumstances by immigration to the younger communities of the West; and, secondly, the public interests of the nation, indeed of mankind, are materially advanced by widening the area of civilization, and reducing a larger proportion of the earth's surface to its beneficent reign.

The development of civilization on this continent is necessarily freed from most of those errors and false principles which crippled its early experimental stage in the Old World. No historic prescription here sanctifies hoary abuses or protects the hereditary monopolies of feudalism. American society is professedly founded upon the idea of individual freedom, which has been realized in a remarkable degree. A clear field is here presented for the development of a social order which does not sacrifice individual welfare.

The systematic reproduction of immense accumulations of manufacturing industry in localities distant from the sphere of production of raw material would be an error on this continent, which happily the extent of our unoccupied territory so far renders impossible. With nearly one thousand five hundred million acres of unsettled public land, we are in no immediate danger of a permanent localization of population. Poverty and misfortune, if associated with energy and intelli-



gence, may still find an inexpressible relief in immigration to the rich domains of the Union.

The policy of our government in favoring the appropriation of the public lands by actual settlers in small tracts tends to the diffusion of proprietary right in the soil, and by consequence increases the stability of the social system in the rising communities of the West. The noblest result of that policy, however, is found in its extension of the principle of social equality.

From such a social organism we may hope that on the removal of the present safeguard of unoccupied public land, the evil reactionary principles that have marred European civilization will be finally eliminated.

The rapid extension of our western settlements is largely due also to the influx of foreign immigration. The annual accessions from this source show a decided increase to our population. Though partially arrested by the late civil war, the return of peace has expanded this popular movement to larger proportions than ever. From correspondence on file in this office it appears that a more than usual proportion of the intelligent and moneyed classes of Europe have become interested in our extraordinary resources. This improved character of foreign immigration, there is reason to believe, is mainly due to the distribution, at the Paris Exposition of 1867, of brief reports on the resources of the United States, and by the circulation, by the State Department, of official information on the subject throughout Europe. America is no longer looked upon in those countries as merely a refuge for oppressed labor. It is now regarded as a field of commercial and industrial enterprise, promising nobler results than any combination of capital and labor has ever realized. We now see an increasing annual import of capital and skilled labor, enabling us to give a more varied and remunerative character to our industry by engaging in the higher and more elaborate processes of art. This enlargement of the scope of our home activity will ultimately result in benefits which, as yet, we are entirely unable to appreciate.

The policy of admitting foreigners to the rights and privileges of American citizens is no longer problematical. It has been tested by an experience of more than three-quarters of a century. We are now prepared for at least an approximation to the results of that policy by a series of census enumerations from 1790 to 1860, bringing the elements of the problem within easy range. As a result of the inquiry, we cannot fail to be impressed with the admirable statesmanship of the founders of this republic in permanently engrafting this beneficent feature upon our national system.

To comprehend the influence of foreign immigration in the wonderful growth of our natural resources, let us suppose that, at the close of the Revolution, the American statesmen and people, under the narrow vindictive prejudices which characterize Asiatic policy, had excluded all foreigners from our shores; our increase of population would then be but the excess of births over deaths. An able statistician in the public press has observed that, instead of the aggregate of 31,443,321, the census of 1860 would have shown not more than 22,000,000, or about the aggregate of our population in 1848. Nearly 10,000,000 of our population, then, is due to the influx of foreigners.

The statistics of the Treasury Department show that the movement of our foreign commerce presents most remarkable advances coincident with the augmentation of foreign immigration. Our annual aggregates of tonnage and resources indicate similar expansions. The following

table, compiled by the statistician referred to, is presented in verification of these statements:

Year	Value of im- ports.	Value of ex- ports.	Tonnage.	Revenues.
1800.....	\$91, 252, 768	\$70, 971, 780	972, 492	\$10, 624, 997
1810.....	85, 400, 000	66, 757, 974	1, 424, 783	9, 299, 737
1820.....	74, 450, 000	69, 691, 699	1, 280, 166	16, 779, 331
1830.....	70, 876, 920	73, 819, 508	1, 191, 776	24, 280, 883
1840.....	131, 571, 930	104, 805, 871	2, 180, 764	16, 993, 853
1850.....	178, 136, 318	151, 898, 720	3, 535, 454	43, 375, 798
1855.....	261, 468, 520	275, 156, 846	5, 212, 001	65, 203, 980

From these statistics it will be seen that a sudden expansion of exports, imports, tonnage, and revenue dates from the year 1830, when the grand impulse to foreign immigration was given. The total number of immigrants from 1820 to 1830 was 143,458; from 1830 to 1840, 552,000; from 1840 to 1850, 1,558,300; from 1850 to 1860, 2,807,624.

In addition to the enormous increase of societary movement demonstrated in the above table, the direct contribution to our national wealth in the form of active capital brought by the immigrants to this country, in smaller or larger sums, merits special attention. Careful statistics show that alien immigrants bring with them small hoards, averaging about sixty-eight dollars per head. At this rate the amount of money thus imported from 1790 to 1860 cannot be less than four hundred million dollars, gold value. It has been estimated that the production of raw and manufactured material in the United States during the year 1860 was two thousand million dollars—an aggregate evidently not over one-third the reality. This would give an average of twenty cents per day, or sixty-two dollars and forty cents per annum, for each individual. Allowing this average to the increase of population due to foreign immigration, and we have an aggregate approaching six hundred million dollars—nearly one-third of the production of that year—due to our liberal policy. Immediately after the close of the war of independence, the illustrious statesmen of that age, foreseeing the inestimable value, present and prospective, to this republic of the national territory, and the importance of early opening the way for its settlement, and for a gradual and progressive transfer to individual ownership under well-defined principles, took measures to these ends, as shown by the journals of the Continental Congress, by reporting, on the 7th of May, 1784, “An ordinance for ascertaining the mode of locating and disposing of lands in the western territory.”

That ordinance was considered, discussed, and amended, until the expiration of a year from its introduction, when it was finally passed, May 7, 1785. It had no precedent in the theory or practice of any pre-existing government. It was the result not only of the highest order of statesmanship but exhibited a profound knowledge of engineering science in minute details. The ordinance made provision for surveying and disposing of the public domain, as well as for donations in the cause of education and for military services. As the extension of the public surveys is an essential prerequisite to the consummation of titles, under numerous acts of legislation, the following is submitted as an

#### OUTLINE OF THE RECTANGULAR SYSTEM OF SURVEY;

which system has progressed gradually to its present extent, stretching from the Atlantic to the Pacific Ocean, and from the 49° north latitude to the Rio Grande del Norte, excepting six New England States, New



York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Kentucky, and Texas, the United States not being the owner of public lands in any of these political divisions. During a period of eighty-four years this system has answered the wants of the people, securing ready and unerring landmarks, the permanency of which, as well as the feasibility of their restoration where destroyed by time or accident, has obviated litigation respecting titles to tracts thus defined.

The system consists of initial points, or the points of intersection of principal base lines, surveyed, measured, and marked on a true parallel of latitude, with principal surveying meridians. In establishing the principal lines from the points of intersection to the four cardinal points of the compass, surveyors mark the corners for quarter sections, sections, and townships, at forty, eighty, and four hundred and eighty chains. From the base lines, which are run on the parallel of latitude, townships count north and south, and from the principal surveying meridian ranges proceed east and west. At the distance of twenty-four miles, or every fourth township lying north of the principal base, and at every thirty miles, or five townships south of the base, standard or correction parallels are established, which in turn become bases for surveys situated immediately north or south of them.

Next, guide or auxiliary meridians are surveyed at every eight ranges, or forty-eight miles east and west of the principal surveying meridian, which, starting in the first instance from the principal base and the first standard parallel south, run due north to the intersection of the first correction parallel north and the principal base, thus forming parallelograms of twenty-four by forty-eight miles north of the principal base, and thirty by forty-eight miles south thereof, embraced by the principal meridian, principal base, first correction parallels north and south of the principal base, and first guide meridian east and west of the principal meridian. These principal lines constitute a framework of the rectangular system.

Each of the aforesaid parallelograms, as well as others situated further north and south, east and west of the principal base and principal meridian, are established on the face of the earth at like distances from those lines or from auxiliary bases and guide meridians. This process divides the land States and Territories into regular and well-defined bodies of land, any one of which, no matter how remote it may be from the principal base and meridian, can be divided into townships of six miles square each, containing, as near as may be, 23,040 acres. The townships are square, each subdivided into thirty-six sections of a mile square, and containing, as near as possible, 640 acres.

Although the laws governing the public surveys do not require the actual subdivision of sections by running and marking lines within them, yet they point out the method by which purchasers may have, at their own expense, subdivided and marked in the field each section into quarter sections, or one hundred and sixty acres, and these into quarter-quarter sections, or forty acres, that service being generally performed by county surveyors in accordance with the original field-notes of surveys executed by United States surveyors. This rectangular method, according to the true meridian, and noting the variation of the magnetic needle, has the advantage of all others in that it is simple, economical, easy of reference in the identification of localities of the most minute subdivisions, by merely designating principal meridian and base line, township, range, and section. In addition to these facilities, it affords a convenient method of ascertaining distances between various

points, towns, and cities, without resorting to the scale of maps, in simply counting squares of townships delineated on the government maps, and allowing to each six lineal miles.

But its chief advantage consists in the facility it furnishes to purchasers to acquire titles either to minute or extensive tracts. It supercedes intricate descriptions in patents, which are necessary, according to geometrical systems, depending on numerous courses and distances for the ascertainment of boundaries resting on corners and sundry variations of the magnetic needle.

The establishment of the rectangular method of survey, and rapid sale of public land in different land States and Territories, necessitated the institution of twenty-three principal meridians, which govern the surveys of the public domain.

Ohio public surveys are controlled by several initial points, and by the first principal meridian coincident with the common boundary between that State and Indiana.

Indiana surveys are referable to the second principal meridian.

Illinois surveys are governed by the second, third, and fourth principal meridians.

Wisconsin surveys are controlled by the fourth principal meridian.

Minnesota public lands are referable to the fourth and fifth principal meridians.

Dakota surveys are regulated by the fifth and sixth principal meridians.

Iowa, Missouri, and Arkansas, by the fifth principal meridian.

Kansas, Nebraska, and the greater part of Colorado, by the sixth principal meridian.

Michigan surveys by the Michigan meridian.

Florida surveys by the Tallahassee meridian.

Alabama surveys by the Huntsville and St. Stephen's meridians.

Mississippi surveys are controlled by the St. Stephen's, the Choctaw, and the Washington meridians.

Louisiana surveys are regulated, east of the Mississippi River, by the St. Helena meridian, and on the west by the Louisiana meridian.

New Mexico surveys are governed by the New Mexico meridian.

Arizona surveys depend on the Gila and Salt River meridian.

Utah surveys on the Great Salt Lake meridian.

Nevada surveys are governed by the Mount Diablo meridian.

Idaho surveys by the Boise meridian.

Montana surveys by the Montana meridian.

California surveys depend on the Mount Diablo, the San Bernardino, and the Humboldt meridians.

Oregon and Washington surveys are governed by the Willamette meridian.

As the law requires the lines of the public surveys to be regulated by the true meridian, and that the *townships shall be six miles square*, recourse has been had to standard parallels and guide meridians to arrest within parallelograms the convergency and divergency of the meridians, resulting in a substantial adherence to the statutory enactments. In order to illustrate the framework of the system, the accompanying diagram "A" will show the initial point of survey, or the intersection of the principal base with the principal meridian, standard parallels or correction lines north and south of the principal base and guide meridians east and west of the principal meridian, together with parallelograms formed by those principal lines surveyed into townships.

## THE METHOD OF SURVEYING THE EXTERIORS OR TOWNSHIP LINES.

The principal meridian, base line, standard parallels, and guide meridians having been first run, measured, and marked, and the corner boundaries thereon established at distances of forty chains from the initial point for quarter-section, eighty chains for section, and four hundred and eighty chains for township corners, the process of running the parallelograms into townships and ranges is as follows:

Townships lying *north* of the base line and *west* of the principal meridian. The government surveyor begins his survey at the southwest corner of township 1 north, range 1 west, already established by former surveyor on the base line. (See figure 1 on diagram A.) Thence he proceeds due north four hundred and eighty chains, establishing quarter section and section corners to No. 2, where he sets corner to townships 1 and 2 north, ranges 1 and 2 west.

The boundary corners may be either trees, if found at the precise spots, posts, or stones of prescribed dimensions, according to the peculiarities of the country; and their positions are indicated by adjacent trees or other permanent objects within convenient distances, the angular bearings and distances of which from the corners are ascertained and described in the field-notes of surveys. The corners thus established are marked on sides fronting township, range, and section, which they face. In the absence of bearing trees witnessing the positions of corner boundaries, mounds of earth or stone are raised around posts. In mounds of earth common to four townships or sections, the posts are set diagonally, and in those common only to two townships or sections, they are planted with their faces to the cardinal points, and are further witnessed by pits dug out and facing the posts in mounds of townships and sections they perpetuate.

The west boundary of township 1 north, range 1 west, or the line between ranges 1 and 2 west of a given principal meridian, being thus surveyed and marked in the field, the next step is to establish the north boundary of the township, which is done by running east on a random line from the corner at figure No. 2, which is common corner to townships 1 and 2 north, ranges 1 and 2 west, by setting at first *temporary* quarter-section and section corners to No. 3, or the northeast corner of the township; thence the northern boundary of the township is measured back on a *true line*, planting permanent quarter-section and section corners at every forty and eighty chains, respectively, to figure No. 4, which is identical with No. 2. In case, however, the northern boundary of the township is found to overrun in length, or fall short of four hundred and eighty chains, or the full measure of six miles, owing either to the convergency of the meridians in running the western boundary of the township, or to other causes, in that contingency the excess or deficiency in measurement is thrown on the west side of the township, to be ultimately merged in the western tier of sections when the township shall have been subdivided into thirty-six sections.

When the survey of the exteriors of township 1 north, range 1 west, is thus completed, the next step is to proceed in a similar manner from No. 4 to 5, No. 5 to 6, No. 6 to 7, which will complete the survey of the exteriors of township 2 north, range 1 west; and so on to No. 10, the southwest corner of township 4 north, range 1 west. Thence north on a true meridian line to No. 11, or the point of intersection of range line with the first standard parallel north of the base line, thus completing the survey of exterior lines of townships 1 to 4 north, of range 1 west. From No. 11 the surveyor returns to the base line, and from the



corner of township 1 north, ranges 2 and 3 west, or No. 12, and proceeds due north in surveying townships 1 to 4 of range 2 west, in similar manner as he did in range 1 west; and so on until he runs the whole parallelogram into townships.

#### TOWNSHIPS LYING NORTH OF THE BASE LINE AND EAST OF THE PRINCIPAL MERIDIAN.

The method of surveying parallelograms lying north of the base line and east of the meridian is to begin at No. 1, or the corner to township 1 north, ranges 1 and 2 east, and proceed due north as with townships lying north and west, except that in this case random lines of northern boundaries of townships are measured *west* and the *true* lines *east*, throwing the excess or deficiency of four hundred and eighty chains as usual on the west ends of the lines. In order to do this, the surveyor on his *true* lines eastward commences his measurement from the western boundaries of townships with the lengths of the excessive or deficient half-sections on the west of the townships, making the remaining measurements even half-miles and miles, or forty and eighty chains.

#### TOWNSHIPS SITUATED SOUTH OF THE BASE AND WEST OF THE MERIDIAN.

In carrying out the rectangular system it was found necessary, owing to the less rapid convergence of the meridians south of the base lines, to establish standard parallels at every thirty miles, or the distance of five full townships, and closing the parallelograms with guide meridians at every eight ranges, or forty-eight miles. When these principal lines are measured and marked in the field, the exterior lines of townships within said parallelograms are surveyed by starting at the corner to townships 5 south, ranges 1 and 2 west, and running due north four hundred and eighty chains, and marking corners north of first standard parallel south and west of the meridian in the manner hereinbefore described, where the corner to townships 4 and 5 south, ranges 1 and 2 west, is established; thence east on a *random* line, and west on a *true* line, of the north boundary of township 5 south, range 1 west; thence on a due north line on the west boundary of township 4 south, range 1 west; thence east on a random and back on the *true* line of the township, and so on until a meridional line, or the west boundary of township 1 south, range 1 west, intersects the principal base line, thus completing the first range of townships lying south of the base line and north of the first standard parallel south.

The next step is to return to the parallel, and from the corner to townships 5 south, ranges 2 and 3 west, to run due north, measure and mark the west boundary of township 5 south, range 2 west, and proceed in the same way as in surveying range 1 west, and so on until the whole parallelogram is run into townships.

Townships situated south of the base line and east of the meridian are surveyed in like manner as those north and east, excepting that the lines start from the corners on the first standard parallel south, and close on the base line within several parallelograms.

#### METHOD OF SUBDIVIDING TOWNSHIPS INTO THIRTY-SIX SECTIONS.

Preliminary to the subdividing of a township containing 23,040 acres, more or less, into thirty-six sections, embracing 640 acres each, more or less, the surveyor traces and measures the east and south boundaries of

section 36, or the extreme southeast angle of the township, so as to detect any change that may have taken place in the magnetic variation as it existed at the time of running the township lines, as well as to compare his chaining with that recorded in the field notes of the township he is subdividing.

In order, therefore, to determine the proper adjustment of his compass for subdividing the township, the surveyor begins at the southeast corner of the township, runs north on a blank line along the east boundary of section 36, at a variation, say, of  $17^{\circ} 51'$  east, 40.05 chains to a point five links west of the quarter-section corner previously established by former surveyor; he continues on, and at 80.09 he comes to a point twelve links west of the corner to sections 25 and 36. From this trial line he finds that, to retrace this line as surveyed by the previous surveyor, he must adjust his compass to a variation of  $17^{\circ} 46'$  east, decreasing the variation east by five minutes, being the result of the difference of latitude and departure in the distance of eighty chains.

With the variation, therefore, of  $17^{\circ} 46'$ , the surveyor commences the subdivision of township 1 north, range 1 west of the principal meridian. Starting from the corner to sections 35 and 36 on the south boundary, he runs a line due north forty chains, marks the quarter-section corner to sections 35 and 36, and continues the line between sections 35 and 36 forty chains more, and at eighty chains from the starting point establishes corner to sections 25, 26, 35, and 36. Thence he runs a random line due east for corner to sections 25 and 36 on east boundary. If he intersects it at the corner, he marks the line back as the true line, establishing quarter-section corner thereon at a point equidistant; but if the random line intersects the eastern boundary of section 36, either north or south of the corner run for, he measures the distance to the corner from the point of the intersection, and calculates a course that will run a true line back between the section corners on the north boundary of section 36, with an increased or decreased variation, as the case may be.

Having thus surveyed and marked section lines of section 36, the surveyor proceeds due north from the corner to sections 25, 26, 35, and 36, and at forty chains establishes quarter section; at eighty chains, section corner to sections 23, 24, 25, and 26; thence on random line he runs due east for the corner of sections 24 and 25 in east boundary, and returns on the true line in the manner he did when surveying the line between sections 25 and 36.

In this manner the survey of each successive section in the first tier is executed, until the surveyor arrives at the north boundary of the township, on a *random* line between sections 1 and 2, and in case it does not intersect the township line at the corner to sections 1 and 2 of the township he is subdividing, and sections 35 and 36 of the township lying north thereof, the surveyor notes the distance of the intersection east or west of the corner, from which he calculates a course that will run a *true* line south to the corner from which the random line started. Thence the surveyor returns five miles to the south boundary of the township he subdivides, and from the corner to sections 34 and 35 begins the survey of the second tier of sections in the like manner he pursued while surveying the first tier, closing his east and west section lines on the section corners of the first tier he has just established.

In the same manner the surveyor perambulates the township until he reaches the fifth tier of sections, and from each section corner established on this tier he completes the subdivision of the township by running *random* lines due west to the corners erected upon the range line, or the western boundary of the township, setting temporary quarter-

section corners at *precisely* forty chains, and throwing the excess or deficiency of eighty chains of measurement on the extreme tier of quarter sections contiguous to the township boundary, and on returning to the interior section corners on a due east course, or otherwise, as the case may be, consequent upon the intersection of the random line with the west boundary of the township, the true lines are established with permanent quarter-section corners at forty chains from the last interior section corners set in surveying the fifth tier of sections.

The foregoing method of subdividing a township into thirty-six sections illustrates the mode and order of survey under every variety of circumstances, as shown by the topography on diagram B, herewith, the numbering of which begins at the northeast angle of the township, and proceeding west to number 6 continues east to number 12, thence west to number 18, and so on alternately to number 36 in the southeast angle of the township.

In subdividing each section, or six hundred and forty acres, into quarter sections, or one hundred and sixty acres each, as shown on the diagram B in dotted lines, the actual survey and marking of the lines are not executed by government surveyors in the field, but their boundaries are ascertained and marked, after the lands are sold, by county surveyors, at the expense of the owners of the lands. The manner of the subdivision consists of measuring straight lines from quarter-section corners of a particular section to the opposite corresponding corners, and the point of the intersection is the interior corner common to four quarter sections.

The quarter sections are, by law, subdivisible into quarter-quarter sections, or forty acres each, not actually surveyed by the government surveyor, but susceptible of survey, and of being marked in the field by county surveyors, at the cost of purchasers from the government, by straight lines running from points equidistant between quarter-section and section corners to the opposite corresponding points on section lines, from south to north and east to west.

Where uniformity in the variation of the magnetic needle is not found in the field, the public surveys are made with instruments operating independently of such variation; the solar compass, transit, or other instrument of equal utility is employed; but where the needle can be relied on in subdividing townships into sections, the ordinary compass of good construction is used for the purpose.

In measuring lines, a four-pole chain is used, consisting of one hundred links, being in length seven inches and ninety-two hundredths of an inch. To maintain the accuracy of the chain, surveyors compare its length from day to day with a standard chain kept for that purpose.

The length of lines is ascertained by horizontal measurements on an air-line, as near as possible, guided by compass-man in the direction of a flag put up in advance on the line to be measured. Impassable obstacles, such as rivers, marshes, abrupt and precipitous mountains and lakes, are obviated by resorting to right-angle offsets; or, if such be inconvenient, to a traverse or trigonometrical operation. The points of intersection of such natural impediments to chaining the lines are marked with posts, and the course and distance therefrom are given in the field-notes to two trees on the opposite sides of the line. These are called witness-trees, and are marked on the sides facing the posts commemorating the intersection points of the interrupted lines. The navigable lakes and water-courses declared by law public highways are meandered, so as to exclude their surfaces from the sale of public lands.

The meandered lines are perpetuated by meander posts at points of



the intersection of the township and section lines with such water-courses; the posts and witness-trees descriptive of township, range, and fractional section are properly marked.

Banks of navigable water-courses and lakes are meandered by taking the courses and distances of their sinuosities, which constitute proper data for computing the areas of fractional subdivisions of sections bordering such navigable water-courses; and as these irregular tracts cannot be described by legal relative positions in a section, they are designated on township plats by a series of numbers, and are described as lot No. 1, 2, 3, and so on, of a particular section in a given township and range.

The monuments employed for commemorating corner boundaries on standard, township, and section lines are illustrated on the accompanying diagram "C." They are adapted to the survey of every variety of country, be it timbered, prairie where timber is not near, or mountainous and devoid of timber. The public surveys are conducted under the direction of the principal clerk of surveys, controlled by the Commissioner of the General Land Office, and under the immediate superintendence of fifteen surveyors general in their respective surveying districts into which the public lands are divided.

The surveyors general, whose offices are conveniently located in their districts and well appointed with personal and other facilities for the business, enter into contracts with professional surveyors, whom they commission as their deputies, and who are thoroughly acquainted with the system and the official requirements in regard to field operations. Surveying contracts—blank forms herewith—describe the particular field-work to be executed, time within which it is to be completed, consideration stipulated at so much per lineal mile of surveying, including all expenses of the surveyor, his party and instruments, together with the proper returns of survey to the office of the surveyor general, to be accompanied by an affidavit of the surveyor to the effect that the work was performed by him, in his own proper person, in accordance with his contract and the manual of surveying instructions, and in strict conformity to the laws governing the survey.

The party of the deputy surveyor generally consists of two chainmen, flagman, axeman, and two moundmen, whose duties are to assist him in running, measuring, and marking the lines, and constructing and setting corner boundaries. They are sworn to perform their respective duties with fidelity before they enter on the same, and on completing the work they make affidavits to the effect that the deputy surveyor was assisted by them in the survey which they describe, and that it has been executed in all respects well and faithfully.

To guard the government from any loss that might be occasioned by erroneous or fraudulent surveys on the part of the surveyor, he is required to give bond, with approved securities, in double the amount of his contract; and when his unfaithfulness is detected the delinquent deputy and his bondsmen are punishable by law, and the surveyor debarred from future employment in like capacity.

Upon the return of surveys to the surveyor general, consisting of original field-notes and a topographical sketch of the country surveyed, the work is examined, and if, on applying the usual tests, it is found to be correctly executed, the surveyor general approves the field-notes; whereupon the draughtsman protracts the same on township plats in triplicate, and, after approving the plats, the surveyor general files the original in his office, to be ultimately delivered to State authorities; the duplicate is sent to the local land office to enable the register and

receiver of public lands to dispose of the lands embraced in the several townships, and the triplicate he transmits to the Commissioner of the General Land Office for the information of the government.

#### LAWS OF PROPERTY—PRE-EMPTION AND HOMESTEAD TITLES.

The ownership of the soil in severalty is essential to civilization. A low stage of society, it is true, a mere nomadic tribal organization, may subsist upon the basis of a community of landed property, or of a usufructuary occupancy of land, but such a constituent principle imposes inflexible limitations upon all human progress, social or individual. Society, thus hopelessly trammelled by the bands of its infancy, never rises above the low aims of animal existence. Its simplicity is not that of innocence, for barbarism has its revolting developments of moral depravity, but of ignorance and lethargy. Habits of settled industry and permanent residence are necessary to civilization; men must assume more intimate and varied relations to each other; society, in order to realize its beneficent aims, must develop a more elaborate and effective organism and call forth its latent forces. A permanent occupancy of the soil in severalty by intelligent labor, protected by efficient police arrangements, is essential to the attainment of these vital aims. No nation has entered upon a career of civilization without abandoning the community of landed estate and admitting the right of private property.

A nice question has been started among publicists as to the origin of the right of property, especially of landed estate. Grotius, Puffendorf, and Rutherforth contend that it arises from the express or implied consent of all concerned to the appropriation of unoccupied goods or land by a private individual. Barbeyrac, Locke, and Burlamaqui combat this hypothesis, and base the right of property upon prior occupancy as the exponent not of any agreement of men, but of a divine law, regulating human association, prior to and underlying the social compact. Men tacitly agree to let the sun shine, yet his continued illumination is by no means the result of that agreement; so their common consent to the appropriation of unoccupied goods is not in any sense the procuring cause or basis of property; it is but the spontaneous recognition of the will of the Creator—an outgrowth of that moral constitution of society which philosophers have denominated "the fitness of things."

Burlamaqui, who seems to have given the question rather a cursory glance, informally sides with Barbeyrac and Locke, by quietly taking positions hostile to Puffendorf's hypothesis. He teaches that the first occupant, in taking possession of what belongs to nobody, gives public notice of his intention of acquiring it; that this taking possession is but the acceptance of the destination which God had originally made of the good things of the earth for the preservation of man. Prior to this taking possession, the claim of all men to the goods or land contemplated was equal. The act of appropriation destroyed this equality of claim, constituting an effort of diligence and foresight which deserved a preference to the thing desired.

Both of the above hypotheses recognize the original donation of the earth and all its fullness to mankind as a whole, and both may be interpreted in strict conformity to this higher principle. Whether based upon the express or implied consent of community, or upon some underlying principle of which that consent is but the intuitive recognition, the ultimate property of the soil, and in fact of all goods, movable or immovable, resides in society. Private ownership is to be regarded as a sort of stewardship. "No man liveth unto himself alone." A solemn



obligation rests upon every one to use the good things of the earth for the general welfare. No legitimate individual interest can be segregated from the public weal. Society may have no judicial processes for the enforcement of this principle. Its whole police organization may be cumbrous and ineffective, while the ultimate end desired may be reached only in man's immortal estate; but the fundamental idea of human brotherhood pervades all true civilization.

The grant of the earth and its fullness to mankind as a whole—to society—makes government, the organ of society, to a certain extent the custodian of all kinds of property. Puffendorf distinguishes three kinds of property: 1st, eminent domain, residing in the commonwealth; 2d, direct property, residing in the landlord; and 3d, useful property, residing in the tenant. In all civilized states government claims the power of taxation or of appropriating such portion of private property as may be necessary to meet the exigencies of society. A refusal or failure to comply with such public demand is followed by confiscation or forfeiture of the right of property through failure of the proprietor to meet his correlative obligation of ministering to the welfare of society. Thus government, by its right of eminent domain, absorbs private ownership and reduces the lands or goods confiscated to that community which subsisted at the inauguration of civilization.

These fundamental principles of public order are brought to view in the organization and administration of the public domain of the United States. Civilized society, organized into an American nationality, takes possession of an immense continental area occupied only in community by hordes of savages claiming a usufructuary title to certain ill-defined areas under tribal organization. Grave considerations might be urged in favor of entirely ignoring these usufructuary claims. The absorption of immense tracts of country as hunting grounds, to supply the wasteful processes of savage life, might be urged with resistless force upon principles of natural justice which condemn all monopolies. In fact, it is but the claim of a savage aristocracy to the same exclusive privilege which the civilized aristocracies of Europe have pressed to such odious extremes in their overgrown parks and forests. But waiving all such adverse considerations, the general government has admitted these usufructuary Indian titles, and extinguished them, by treaty purchase, to successive areas, as the westward expansion of civilization has rendered necessary. We have nothing here to do with the non-realization of the beneficent designs of Congress for the welfare of the aborigines, nor with injuries often resulting, which no administrative sagacity could prevent. We find the United States government standing to the immense bodies of our unoccupied western domain in the relation of the trustee of society, holding not only the right of eminent domain, but also of individual ownership.

But it is contrary to the interests of civilization that this relation should continue longer than is absolutely necessary. Hence it has ever been the anxious desire of the government to transmute its title to the soil into private ownership by the most speedy processes that could be devised. The question of the disposal of the public lands occupied the anxious attention of our revolutionary statesmen, the old Continental Congress spending an entire year in framing the "ordinance" in that respect. This ordinance was the nucleus of a series of enactments by which the legislature has endeavored to adapt the details of the public-land system to the wants of successive periods of our history. These statutes, with the executive and judicial rulings under them, constitute

a formidable body of jurisprudence, requiring years of careful study, and giving scope for a separate branch of the legal profession.

In the early legislation of Congress it was proposed, in the first place, to appropriate a liberal portion of the public lands as bounties to the officers and soldiers of the revolutionary war, attesting the nation's gratitude for their inestimable services. The residue was to be sold for cash, or upon limited credit. The minimum price fixed by the ordinance of the Continental Congress, passed in 1785, was \$1 per acre. By statute of the fourth Congress under the Constitution, this minimum was raised to \$2 per acre, which by act of April 24, 1820, was reduced to the present minimum of \$1 25 per acre.

By act of March 3, 1807, it was made unlawful for any person to take possession of, make settlement upon, or survey any portion of the public lands, until duly authorized by law, offenders being subjected to forcible ejection and loss of all their improvements. Settlers upon public lands prior to passage of the act were, however, permitted, on application made prior to the 1st January, 1808, to remain as tenants at will upon tracts not exceeding three hundred and twenty acres, on such terms and conditions as should prevent waste or damage to the land and secure its peaceable surrender at the demand of the government, or to any purchaser under the law; all such applicants being required to sign a declaration repudiating all claim to the occupancy of the premises, except the indulgence of the government. Inasmuch as such tenants at will might become purchasers when the lands were offered for sale, this privilege may be regarded as the germ of the pre-emption privilege subsequently granted.

This policy of ejection of trespassers was found to be impracticable. The great western movement of our people had already commenced, and the facilities for evading the execution of the law presented resistless temptations to unlawful settlement. The number of trespassers soon became formidable, requiring a powerful and expensive effort for their ejection. Instead of rigorously enforcing the restrictions of the act of 1807, Congress avoided the difficulty. By acts of May 29, 1830, January 23, 1832, July 14, 1832, June 19, 1834, July 2, 1836, June 22, 1838, and June 1, 1840, provision was made for healing an immense number of breaches of the law by granting pre-emption to settlers regardless of restrictions. The necessities which called forth these retrospective statutes became so numerous and pressing as to raise the question of the soundness of the restrictive policy.

By act of September 4, 1841, this policy was finally repudiated, and settlement prior to purchase was no longer, *per se*, a trespass. By this noble statute, and the subsequent act of March 3, 1843, pre-emption was engrafted upon the public-land system as a permanent feature, yet restricted to surveyed lands. By act of March 3, 1853, this privilege was extended in California to unsurveyed lands. By act of July 17, 1854, the same extension was made in Oregon and Washington; by act of July 22, 1854, in Kansas and Nebraska; and by the statute of August 4, 1854, to Minnesota. The act of June 2, 1862, has been authoritatively construed as extending pre-emption to unsurveyed lands in the public domain.

To carry out the liberal aims of the legislature, the executive has availed itself of its legal discretion in withholding from public sale all surveyed lands for a time sufficient to give the actual settlers the choice of the best localities, thus saving them from the monopoly of speculation. The consideration upon which this inestimable privilege is granted is a *bona fide* settlement upon and occupation of the tract by



such substantial improvement and cultivation as clearly indicate an intention of making it a permanent home. Such settlement of a tract not exceeding one hundred and sixty acres, constituting a legal notice to all concerned, is the basis of an inceptive right which, under the protection of the law, and by fulfilling its requirements, a properly qualified pre-emptor may prosecute to a perfect title.

The results of this beneficent policy are seen in numerous States and Territories occupied by multitudes of small tract owners where otherwise might now be found great land proprietors. To the energetic and industrious man, without means, it has opened avenues unnumbered to independence and wealth. It has developed as the ruling class of the population a self-reliant yeomanry, the true popular element of a democratic republic. It has broadened the base of our political system by diffusing the proprietary interest in the soil; enlarging the number who have permanent stake in the preservation of our institutions. For certain classes of settlers it has advantage even over the homestead provisions, as shown in the fact that a large number of homestead claimants have availed themselves of the privilege allowed by law of commuting their claims into pre-emptions.

Some modification in the practical working of the system is required in order to enable it to meet changed circumstances. Expensive litigation might be avoided by settling more definitely some of its principles and requirements. The permission of pre-emption settlements on unsurveyed lands has occasionally developed conflicts arising from two or more settlers being found after survey upon the same quarter section, or even upon less legal subdivisions. It is suggested that the statute be modified to meet such cases by admitting joint entries, covering the dwellings and valuable improvements of both parties.

It is desired in this connection to invite attention to the recommendation of the last annual report, to fix the limit of time within which pre-emptors on unoffered lands shall make proof and payment, also to prescribe regulations as to appeals, and to require the consummation of a claim, either pre-emption or homestead, pursuant to the provisions of the statutes under which it had its inception. Attention is called to a discrepancy in the requirements of the statutes of May 30, 1862, and June 21, 1862, upon pre-emptors settling on unsurveyed lands. By the former (sec. 7) it is required that all applicants under the pre-emption laws shall file their declaratory statements within three months from the date of the receipt at the district land office of the approved plat of survey, whereas the latter statute allows six months after the receipt of plats of survey within which such declaratory statements may be filed. It is recommended that this matter be no longer left to doubtful construction, but that it be authoritatively settled by statute.

*Homesteads.*—The disposal of our public lands has been accelerated by the inauguration of the homestead policy. By act of May 20, 1862, a person entitled to pre-emption may settle upon a tract not otherwise appropriated, and not exceeding one hundred and sixty acres of minimum or eighty acres of double minimum, and by continued occupying and cultivation for five years, may perfect his title by making proper proof of having complied with the conditions prescribed in the law, and by paying a small amount of fees to defray the expense of local administration. By act of June 21, 1866, the public lands in Alabama, Mississippi, Louisiana, Arkansas, and Florida are subject to disposal only under the provisions of the homestead law.

During the fiscal year ending June 30, 1869, rapid progress was made in the disposal of the public domain under the homestead provisions. Its

privileges have been eagerly accepted by all classes of settlers, both native and foreign born. The proofs of settlement and cultivation now being submitted by claimants who have resided the requisite term of five years on their respective tracts, as well as by those who propose to prove up at an earlier period under the eighth section of the homestead law, indicate the accession of a thrifty and energetic class of settlers, giving promise of an enterprising and intelligent population.

Since last report 2,737,365.05 acres have been disposed of under the homestead statutes, being an increase of 408,442.80 acres over the aggregate reported last year. Of this quantity 622,507.42 acres are within the States of Alabama, Mississippi, Louisiana, Arkansas, and Florida, leaving 2,114,857.63 acres as entered within the other public land States and Territories. This area, more than one-tenth of the State of Ohio, is included in 22,811 farms, of which 5,187 are within the southern States above mentioned. The number of claims upon which final proof was offered during the fiscal year just closed is 4,026. The total fees and commissions received amount to \$315,419 49, while the total expenses of the General Land Office and of seventy-three district land offices did not exceed \$453,816 43. Thus the fees received from homestead settlements alone pay nearly three-fourths of the expenses of the public-land system, not including cost of surveys. The machinery of the homestead system has become so nearly complete that few questions have arisen since last report involving construction of the statutes; two important rulings, however, have been rendered, which will be of public interest.

In final proof cases, where settlers cannot show continuous residence of five years, all other points being satisfactorily established, the proof will be accepted as sufficient under the eighth section of the homestead law, and the party will be permitted to make payment for the land in accordance with the provisions of the statute.

Inquiry has been made whether a homestead settler may not make final affidavit and proof before some officer authorized to administer oaths, and transmit the same to the district officers with the final fee payment, where good reasons can be given for this departure from the regular course. To this it has been replied, that the statute expressly requires that the homestead party shall make affidavit at the district land office, and that this department has no authority to relax the rule; the testimony of the claimant's witnesses, however, may be taken by deposition before any duly authorized officer and presented at the district land office; if satisfactory, it will be accepted. It is estimated that the total number of acres disposed of during the year for actual settlement is not less than 3,037,365 acres, included in about 25,311 farms. If to the above we add the number of farms purchased at private entry for cash, or located with military land warrants or agricultural college scrip, and also the tracts sold by railway companies from their landed endowments, we have very little difficulty in arriving at the conclusion that by the direct or indirect operations of our public-land system during the past year, no less than 60,000 small farms have been added to the agricultural freeholds of the United States. This is about double the total number of land-owners in England, as returned by the British census of 1861. But the principle of pre-emption, in a modified form, has been applied to town sites. The law gives great facilities for building towns and cities on the public domain, which have been extensively used in the different States and Territories. If, then, we group together the agricultural and urban settlements on the public domain, and the increase of freeholds in the southern States, growing out of the



subdivision of estates consequent upon the revolution of the system of labor, we figure up an addition to the landed proprietors of the nation during the last fiscal year of 80,000. Considering the enormous increase of settlements on the public lands during the present decade, it is but fair to estimate the present number of agricultural freeholds at about double the number returned in the last census reports, or four millions. If to these we add the urban proprietors, we have almost five and a half millions, or about one in every eight of the population. History may be challenged for a parallel to these facts. Never had a free people so completely in their own hands the elements of their political and social destiny. Upon this great mass of small proprietary interests we may rest our hope of escaping those giant evils of centralization of property and social influence by which even the massive civilization of the great empire of antiquity was undermined and rendered unable to withstand the deluge of northern barbarism. In order to preserve our free institutions we must watch with jealous vigilance and promptly counteract any tendency to centralization.

#### PRE-EMPTION AND HOMESTEAD RULINGS.

In the administration of the settlement statutes, cases have arisen of the following character:

A party who had made an entry under the homestead law commuted his title under the eighth section of the homestead act of May 20, 1862. Upon the same day that he perfected his homestead title he filed a declaratory statement for other tracts as a pre-emption. It was held, that to initiate a pre-emption claim, actual personal settlement must be made on the tracts claimed prior to the filing of a declaratory statement, and consequently that the homestead settler could not have made a legal *pre-emption* settlement on any public land *prior* to his consummation of his homestead.

The tenth section, act of September 4, 1841, granting the right of pre-emption, provides that "no person who shall quit or abandon his residence on his own land to reside on the public land in the same State or Territory shall acquire any right of pre-emption under this act." In view of this inhibition, and the fact that no settlement preceded the filing of the pre-emption declaration, such declaration is held to be invalid, and that the party connected with the proceedings acquired no pre-emption right under such circumstances.

In another case, a settler entered certain tracts as a homestead, and within a year and a half filed his pre-emption declaration for other tracts, not having either abandoned or consummated his homestead. In this case, it was ruled that claims could not be initiated and carried forward by the same parties, *pari passu*, under the pre-emption and homestead statutes, for the reason that continuous personal residence on the tracts claimed, from the inception to the consummation of the claim, was an essential condition under each of said statutes, and that as the homestead party could not have an actual personal residence on two different tracts at the same time, the pre-emption filing made after the initiation of his homestead was unlawful.

Where lands have once been offered at public sale, and are afterward withdrawn from market for railroad purposes, pre-emption settlements made thereon in good faith, *prior to date of withdrawal*, are subject to consummation within the period fixed by law for proving up and entering offered lands, to wit: in twelve months from the date of settlement at the ordinary minimum of \$1 25 per acre.

Where *offered* lands are embraced in a declaratory statement and the filing is formally abandoned or forfeited for want of compliance with the legal requirements, the tracts embraced in such statement are subject to private entry without being again advertised and re-offered.

Where lands of this class are embraced in homestead or other entries, subsequently canceled, they *are not* subject to ordinary private entry until properly restored by advertisement and re-offering.

It is ruled that the register and receiver have no authority to allow homesteads on tracts covered by pre-emption filings, upon *ex parte* affidavit that there are no pre-emption improvements thereon.

In the case of filings on *offered* lands, where proof and payment are not made within the twelve months allowed by law, the filings are forfeited and the tracts are subject to homestead.

In other cases, where allegations are made of non-compliance with the requirements of the statutes by parties claiming under pre-emption, the register and receiver, on application for cancellation, require such allegations to be made under oath; and if satisfactory cause is shown, the land officers are required to appoint a day of hearing, giving the parties in interest at least thirty days' notice; and thereafter they are required to make a report for final decision of the department.

It has been represented by the district officers that there are many cases where single men have taken land under the pre-emption and homestead statutes, who go on their claims and plow a few acres, or have such work done, build a shanty, and live there a few days or weeks, and then, after absence of four or five months, return for a short period, taking care not to be absent for the full period of six months. And further, that cases have occurred where pre-emptors work at a trade, or practice a profession some miles from their claims, hire persons to make improvements for them, and occasionally go to the premises, the claimants making slight improvements at or prior to the time of filing their declaratory statements.

The object of the pre-emption and homestead statutes is to secure the development of the public lands by actual and permanent settlement thereon, and cultivation, as a means of increasing the national wealth and resources. Our general practice requires claimants under these statutes to show actual and continuous personal residence upon the land from the inception of claim to its consummation, with such extent of improvements and of actual cultivation as will clearly identify the claimant with the premises as a permanent and *bona fide* settler. Further, that no entries should be permitted under the pre-emption statutes unless the fact is shown that at least six months of actual and continuous residence is made by the pre-emptor prior to date of entry, except in cases where the extent of cultivation and value of improvements clearly identify the claimant as a permanent settler. The same rule is applicable, in cases of commutations of homestead, under the homestead act of May 20, 1862.

It has been enjoined upon the registers and receivers, in all cases of the character referred to, where absence is shown, or where they have grounds for belief that the claimant is not a *bona fide* settler, to require satisfactory testimony by two witnesses in each case, before they are authorized to permit an entry.

Where the testimony is not satisfactory to the district land officers and the claimant insists upon the right of pre-emption entry without further proof, the register and receiver are required to render their decision and notify the party thereof, in order that an appeal may be submitted to the department for final decision.



Cases have arisen where settlers have found it necessary, temporarily, to leave their tracts in view of Indian incursions. In such cases the department will treat the temporary absence as caused by duress, and as of no prejudice to the settler where all other requirements of the statute have been complied with, and where the parties return to their claims as early as may be consistent with personal safety to themselves and their families.

#### LAND GRANTS IN AID OF POPULAR EDUCATION.

Free institutions are incompatible with popular ignorance. Republicanism, the *beau ideal* of civil government, to which man has arrived only after a long and painful experience of error and suffering, can subsist only with popular elements developed by intellectual culture, enlightened by the lessons of history, and subjected to effective moral discipline. The incapacity of many nations of the Old World to maintain popular institutions may serve as a partial excuse for the continuance of monarchical or aristocratic authority; but for the loss of self-government by a people once in its enjoyment there can be no excuse whatever. Every free society is placed under imperative obligations to perpetuate its beneficent constitution by a careful training of each successive generation of its people.

Never in history was this social obligation so fully and unreservedly recognized as by the founders of this republic. Prior to the Revolution in the different colonies, the subject of popular education had attracted attention, and provision had been made for its practical realization to a surprising extent when we take into consideration the circumstances of the world in that age. The theory of *general* education found no basis in the aristocratic social constitution of the mother country, while in the colonies themselves were to be found influences decidedly hostile to it, both in theory and practice. The injustice and persecution, however, which had caused the immigration to this country, especially to the northern colonies, had wonderfully neutralized the religious and political prejudices of our forefathers, and prepared them to accept doctrines of very opposite tendency. The comparative feebleness of aristocratic *prestige* in the forests of the New World, permitted to the sentiment of independent manhood a development which it never would have realized amid the overshadowing prescription of feudal Europe. Whatever reactionary public opinion may have resisted, the idea of democracy was uprooted and reversed by the Revolution, that wonderful social influence by which so many effete principles and institutions were swept away. The establishment of democracy was followed by the natural development of its principles, especially in the direction of popular education.

In regard to the endowment of educational institutions by the government, very little difficulty seems to have been experienced by our fathers. They assumed, without question, that a government, as the organ of society, enjoys the right and is vested with the power to meet this social necessity. No member of the Continental Congress seems to have raised the question in the discussions upon the provision in the noble ordinance of March 20, 1785, the nucleus of the present public-land system, by which section 16 of every township was set apart for the endowment of public schools. This policy at once met with enthusiastic approval from the public, and was tacitly incorporated into the American system as one of its fundamental organic ideas. It has become part and parcel of every democratic movement in the Old World, and is repudiated only



by parties and interests allied with reactionary despotism both political and ecclesiastical.

This reservation of a section, or one mile square, of six hundred and forty acres, in each township, for the support of public schools, was specially provided for in the organization of each new State and Territory up to the time of the admission of Oregon, in which instance the policy was inaugurated of duplicating the quantity, section 36, as well as section 16, being granted "in place," or, where covered by prior adverse rights, indemnified elsewhere by selection from unsold public land made by authority of the State interested. This increased donation was repeated in the admission of each subsequent State except West Virginia, which had no public lands within her limits.

For the endowment of educational institutions of a higher grade, at least two townships, embracing seventy-two sections, have been granted to each new State. Special grants have also been made to private enterprises. The fruits of this enlightened liberality are seen in the elevated tone of even our pioneer civilization.

By act of July 2, 1862, our educational endowment system was enlarged by the donation to each State of thirty thousand acres of public land for each senator and representative to which it was entitled under the apportionment of 1860, for the support of colleges for the cultivation of agricultural and mechanical science and art. From the able report of the superintendent of public schools of Missouri for 1868 is taken the following account of the actual disposal of several of the State quotas under this grant, having been compiled from correspondence with the State authorities.

Massachusetts received 360,000 acres, which were sold for \$236,307. Of the income derivable from this fund, two-thirds are devoted to an agricultural college located at Amherst, and the other third to the Massachusetts Institute of Technology.

North Carolina received scrip to the amount of 270,000 acres, upon which, at the date of the correspondence, nothing had been realized. The scrip had been sold, but under such circumstances that the trustees of the university to whom it was granted declined to receive the proceeds. If the act under which the sale was made should not be invalidated, the university will realize \$135,000; a sum insufficient for the support of an agricultural institution.

New Jersey had sold her 210,000 acres for \$110,000; this, being insufficient to maintain a separate institution, was added to the endowment of Rutgers College and Scientific School.

Indiana had received \$200,000 for her 390,000 acres; a sum inadequate to the establishment of a separate institution, which will require additional endowment from the State.

West Virginia had a grant of 150,000 acres, for which she received \$85,000. No institution as yet established.

Kansas seems to have disposed of her 90,000 acres on unusually advantageous terms, realizing \$360,000, which, if judiciously managed, will, it is thought, support a college.

Minnesota was still more fortunate, receiving \$600,000 for 120,000 acres, constituting a respectable endowment for a college.

Michigan had sold but a small proportion of her 240,000 acres, holding it at \$2 50 per acre. It was proposed to reduce the price so as to secure an early sale of the land, with the expectation of realizing some \$500,000. The college that had received the endowment had, at the date of the correspondence, been for eleven years in successful operation.

Connecticut had sold land scrip representing 180,000 acres for \$130,000, which was invested in State bonds at six per cent., the annual proceeds, \$8,100, being annually paid over to Yale College for support of the Sheffield Scientific School.

Kentucky realized \$165,000 for her 330,000 acres. Her agricultural college is part of the State University. It is fully organized, and has two hundred students.

Illinois has sold a part of her 480,000 acres for \$250,192 50, and it was hoped the disposal of the remainder, unsold, would augment the sum to a large endowment. The college is a separate institution.

Ohio had sold 629,920 acres for \$342,450 80. The proceeds had been invested at six per cent. per annum, but no plan of organization had been determined upon.

Wisconsin had devoted her 240,000 acres to an agricultural department of the State University. It had not been disposed of, but promised to realize a respectable endowment. The people of the county wherein the institution is located had given \$40,000 in furtherance of the enterprise. An experimental farm was part of the investment.

Pennsylvania had received for her 780,000 acres \$439,186 80. The State had given \$150,000 in addition, yet the united sum was thought insufficient to maintain the college, which is a separate institution.

Iowa located 240,000 acres of scrip within her own limits, and the plans of sale and lease have both been followed, the latter being preferred. The lands selected are valued at \$480,000. The college is located upon a farm of six hundred and forty acres, with buildings valued at \$111,000.

Maryland from the sale of 210,000 acres realized but \$105,000. This was assigned to an agricultural college already in existence, yielding an income of \$6,000. The secretary of state, after expressing doubt of its sufficiency to support a separate institution, adds: "But the best agriculturists and educators are dissatisfied. The prophecy is that the State will sink \$100,000 and that the college will go under. It cannot thrive as a purely agricultural school."

California's quota under this grant is 150,000 acres. It was proposed therewith to found at Oakland "the college of agriculture, mining, and mechanic arts," part of the State University, to be located at this place.

Missouri received a grant of 330,000 acres, but many of the selections being double-minimum land on the line of the South Pacific railroad, it was reduced in quantity to 280,000 acres. A year previous these selections were estimated at the value of \$336,000, but according to the estimate of the State register this estimate had risen twenty-five per cent. by June 15, 1869, on account of the general rise in value of lands along the line of the railroad.

New York received under the grant scrip representing 990,000 acres. The entire proceeds of this munificent gift were appropriated to Cornell University, at Ithaca, upon several conditions, among which the most important were that Ezra Cornell should give to the institution \$500,000, and that one student from each of the one hundred and twenty-eight assembly districts should be educated free of expense for tuition, such students being designated by a competitive examination on a plan laid down in the act. Mr. Cornell has donated not only the \$500,000 required, but also two hundred acres of land, the Jewell collection of geology and paleontology, which had cost him \$10,000, and \$25,000 in subsequent donations. Besides all this, Mr. Cornell had invested \$300,000 in purchasing the scrip and in locating the lands of the university. He had previously erected at Ithaca, at a cost of nearly \$100,000, a free public library, with large halls and lecture-rooms, affording extensive supplementary accommodations to the institution.



The failure of many of the States to realize a competent endowment from the bounty of Congress may be attributed to hasty and inconsiderate disposal. Those States which still hold their lands either on lease or awaiting the rise of the market bid fair to receive adequate means for the support of their agricultural colleges. The benefits even of the most unpromising of these enterprises, however, amply justify the expenditure.

In 1860 the entire number of educational establishments in the United States was 113,006, with 148,742 teachers and 5,417,880 pupils; the annual income was \$33,990,482. Of these aggregates 445 were collegiate institutions, with 54,969 students. The academies and other schools not designated as public schools numbered 6,636, with 455,559 pupils. The number of public schools was 106,915, with 4,917,552 pupils. The aggregate number of public libraries was 27,730, embracing 13,316,379 volumes. The extension and perfection of our educational system has kept in advance of even our wonderful increase in population and physical resources. It is not directed by any overpowering interest to the promotion of selfish ends. It is controlled and directed by the people themselves. Intelligence is at a high premium in every free State, and is ample security for the faithful execution of this popular power.

Rigid disciplinarians bewail the lack of symmetry with which these popular efforts are conducted, but true wisdom teaches us to delay the formation of a complete system of American education until our experience shall have developed the true elements and necessities of the work.

Inasmuch as no general enumeration has been made since the census of 1860, it is impossible to procure aggregates representing the present status of educational enterprise in this country. A few items, selected from the school reports of the public-land States, will serve to illustrate at once the wonderful advance in the educational work of the nation, and the influence of the public-land system in its promotion.

The commissioner of common schools for the State of Ohio, in his report of the school-year ending August 31, 1868, shows that there were 1,019,192 youths between the ages of five and twenty-one years entitled to the benefits of the common-school system, being an increase of 23,942, or two and a half per cent., upon the previous report. The total value of school-houses and grounds in the same year was \$10,330,097, being an increase of \$1,257,654 over the value in 1867. The whole number of schools in 1868 was 11,783, an increase of 44; pupils enrolled, 731,772, an increase of 27,005; average daily attendance, 411,721; increase, 13,235; teachers, 21,592; increase, 24.

In summing up results of the enlightened and beneficent legislation of the national government in this respect, it is ascertained that the aggregate endowments in the cause of education are—

	Acres.
For common schools.....	67, 983, 914
For universities .....	1, 082, 880
In virtue of the agricultural and mechanic college grant...	9, 510, 000

Total.....	78, 576, 794
------------	--------------

If the third grant above referred to be extended to the eleven Territories when admitted as States, and on the basis of two senators and one representative each, the agricultural and mechanic college grant would receive an increase of.....

990, 000



Making the princely endowment by Congress in the cause of education of 79,566,794 acres, or 124,323 square miles—a larger surface than the united areas of England, Wales, Scotland, Ireland, and all the surrounding islands in the English seas.

#### CONCESSIONS IN AID OF INTERNAL IMPROVEMENTS.

Congress, by the act of 3d March, 1863, granted 200,000 acres of land to the State of Michigan "to aid in building a harbor and ship-canal at Portage Lake, Keewenaw Point, Lake Superior." The State has taken the action required by the statute, and through agents has filed lists of the whole 200,000 acres. Of that quantity 192,050 acres have been certified to Michigan, the residue being in course of adjustment. These lands were required to be selected from those nearest the line of improvement, by alternate sections, and are accordingly being so selected. By the act of July 3, 1866, a further grant of 200,000 acres was made for the purpose above mentioned; 150,000 acres to be taken from alternate odd-numbered sections, and 50,000 acres of the even-numbered sections, all in the Upper Peninsula, and of lands to which homestead or pre-emption rights did not exist. Of this grant, 133,058 acres have been certified to the State, and the residue is in process of adjustment.

As heretofore stated, the grants to the State of Wisconsin, by acts of 8th August, 1846, and 3d August, 1854, for the improvement of the Fox and Wisconsin Rivers, have been finally adjusted. Such is also the case with the grant of 100,000 acres, made by the act of July 3, 1866, in aid of the construction of a ship-canal to connect the waters of Lake Superior with Lac La Belle, which has been finally closed. The grant of 200,000 acres made to Wisconsin by the act of April 10, 1866, to aid in the construction of a breakwater and ship-canal at the head of Sturgeon Bay, to connect the waters of Green Bay with Lake Michigan, has been fully satisfied.

As shown in the last report, it was decided by the department that the grant of 500,000 acres, made by the act of September, 1841, and extended to Nebraska by act of February 9, 1867, should not be reduced by the quantity granted by the act of April 19, 1864, for the reason that the latter grant was for purposes wholly distinct from those contemplated by the act of 1841. Under this grant the State has selected 386,957 acres, which are in process of adjustment, and the whole will soon be finally adjusted and settled.

The munificence of Congress in aid of internal improvements is shown in the grants for that object—

	Aeres.
Under act of 1841, which, when fully satisfied, will be equal to .....	7, 306, 544. 67
To which add, on account of prior grants for roads and improvement of rivers .....	623, 716. 14
Des Moines improvement.....	833, 079. 70
Fox and Wisconsin River improvement .....	683, 728. 42
Canal purposes.....	4, 405, 986. 00
<b>Total.....</b>	<b>13, 853, 054. 93</b>
Estimated for wagon-roads.....	3, 782, 213. 27
Evidence of title has already been furnished in aid of railroads .....	22, 221, 308. 87

The estimated area which will inure under existing laws in aid of the construction of railways and wagon-roads is 185,890,794.67 acres, showing subsidies unequalled in the history of any government for the objects contemplated.

#### CITIES AND TOWNS ON THE PUBLIC LANDS.

The town-site acts of March 2, 1867, and June 8, 1868, have given new impetus to the building of cities and towns upon the public domain. The enterprising population of different portions of the West are associating themselves into communities for purposes of trade and commerce.

Applications for the entry under the aforesaid laws of the lands embraced in such town sites are daily being made to the district land offices, and then referred to the department for final adjustment. In some instances the entry of large cities has been authorized at the minimum rate of \$1 25 per acre. The probate judge or the mayor of the city or town makes the entry *in trust* for the inhabitants, and then executes a deed to each lot-holder.

Various questions have arisen as to the location of towns in the mineral regions, and as to the authority of the mayor of a town to receive a patent *in trust* for persons residing and owning lots outside of corporate limits. Under date of April 21, 1869, the Commissioner decided that the town of Nevada City, California, could enter a certain tract which had been once used for mining, the evidence showing the mines were worked out and exhausted, and the premises more valuable for purposes of trade and agriculture than for mining.

In the case of the application of the corporate authorities of Grass Valley, California, it was held, that it was not the intention of the statute, in donating lands for town-site purposes, to extend the operation of the grant beyond the limits of an incorporated town, for the reason that the trust must be executed by the mayor or other corporate authorities, in his or their official capacity, for the benefit of the actual residents of the town, and not for those residing outside the corporate limits.

During the past year applications have been made to file declaratory statements, under the acts aforesaid, for a number of towns and cities upon the public land, sixteen of them being in the Territory of Utah.

The entry of the town site of Helena, in Montana Territory, containing a population of eight thousand, and doing an annual business of twenty-five million dollars, has been authorized during the year; also those of Nevada City, California, and Le Grand, Oregon. The evidence in support of the applications of other cities and towns, varying in population from five hundred to five thousand, are in process of adjudication by this office.

All of the entries and applications mentioned are under the statutes of March 2, 1867, and June 8, 1868, except that of Le Grand, which is made under the acts of 1864 and 1865.

It is estimated that thirteen thousand towns and cities have been laid out upon the public domain since the organization of the land system. Some of these cities and towns are now important centers of trade, and are exerting a marked influence upon the business prospects of the "Great West."

A few years ago the larger portion of this vast extent of public lands was a wilderness, covered here and there by the villages of the aborigines and the trading-posts of the trapper. What a change has come

over this scene! Now, what were once the "wilderness and the solitary place" are no longer so; large cities and thriving towns, with their busy populations, dot the whole extent of our western Territories.

The beneficent nature of the various town-site laws is expected to still further develop and unfold the advantages to be derived from association together into communities, and the formation and building of towns upon the public lands.

THE ESTABLISHMENT AND REOPENING OF LAND OFFICES, CHANGES IN LOCATION OF THE SAME, AND ADJUSTMENT OF BOUNDARIES OF LAND DISTRICTS.

Pursuant to the President's order of 7th July, 1868, the removal of the land offices from Omaha to *West Point*, from Nebraska City to *Lincoln*, and from Brownsville to *Beatrice*, in the State of Nebraska, has been consummated.

By executive order of 20th April, 1869, an additional land office at *Grand Island*, Nebraska, has been opened for the disposal of lands in the "Grand Island" district, created by act of Congress approved 27th July, 1868, the district embracing all that portion of the Omaha included within the following limits, to wit: on the east by the line dividing ranges 6 and 7 east; on the north by the line dividing townships 20 and 21 north; on the south by the south bank of the Platte River; and on the west by the west boundary of the State.

By notice, dated June 7, 1869, the boundaries of the Aurora land district, in the States of Nevada and California, formerly composed of the counties of Esmeralda in the former, and Mono and Inyo in the latter State, were so modified as to conform in their exterior limits to the lines of public survey, as follows: Beginning at the corner common to townships 13 and 14 north, ranges 39 and 40 east of the Mount Diablo base and meridian, when the same shall have been established; thence west on the line between townships 13 and 14 north to the intersection of the line between ranges 26 and 27 east; thence south on this range line to the intersection of the second standard parallel north; thence west to the line between ranges 22 and 23 east; thence south along the line between ranges 22 and 23 east to the intersection of the first standard parallel south; thence east to the line between ranges 26 and 27 east; thence south on the line between ranges 26 and 27 east to the intersection of the third standard parallel south; thence east to the line between ranges 32 and 33 east; thence south on the line between ranges 32 and 33 east to the intersection of the sixth standard parallel south; thence east to the San Bernardino meridian; thence north with said meridian to the intersection of the eastern boundary of California; thence with said eastern boundary to the intersection of the line between ranges 39 and 40 east of Mount Diablo meridian; thence north on the said line to the place of beginning.

By executive order of 12th June, 1869, the office for the southern portion of California, which had been temporarily consolidated with the San Francisco office by President's direction of 26th April, 1865, was reopened at *Los Angeles* for the sale and entry of the vacant public lands within the bounds of that district as existing prior to the aforesaid act of 1865.

By notice of 5th June, 1869, the land office formerly located at Winnebago City, Minnesota, was transferred to *Jackson*, in the same district.

By executive order of 28th July, 1868, an additional land district in Minnesota, embracing all lands north of township 124 and west of



range 35 west of the fifth principal meridian, with office at *Alexandria*, was established pursuant to act of Congress approved July 25, 1868.

The location of all the land offices now in operation in the United States, and the offices in the surveying districts, will be found in an accompanying paper.

ACCOUNTS OF RECEIVERS OF PUBLIC MONEYS, DISBURSING AGENTS,  
SURVEYORS GENERAL, AND DEPUTIES.

The Commissioner regards it as indispensable to the interest of the United States that the balances in the hands of receivers of public moneys shall be kept down by prompt deposits, invariably within the treasury requirements of May 1, 1863, and that, as the land-auditing branch of the government, it is our duty to exercise the utmost vigilance to guard the public interest in this respect to the full extent of the means at command. The accounting officers of the General Land Office have, therefore, been instructed as follows:

That the prompt rendition of the monthly accounts of the receivers of public moneys, and of their quarterly accounts, shall be exacted and insisted upon; that when either fails to reach this office within five days after the same is due by mail, it shall be telegraphed for, and a letter written to the delinquent officer, calling on him to account for the delay; and, if the explanation is not satisfactory, that the case shall be promptly reported to the appointing power.

That within three days after the reception of the monthly accounts current showing the receiver's admitted balance, the same shall be brought to the test of the treasury requirements in regard to deposits, and whenever any excess exists over the maximum amount, \$2,000, allowed by treasury regulations to remain in the hands of receivers at the end of a quarter, a dispatch shall be sent forthwith to the receiver directing him to make the requisite deposit, our regulations requiring that the Secretary of the Treasury be advised of the facts.

That upon the receipt at the General Land Office of the quarterly accounts they shall be at once adjusted, and reports of the adjustment made to the First Comptroller of the Treasury, the service to be so arranged and divided that the accounts shall be adjusted with as much speed as may be consistent with necessary scrutiny and accuracy, and in no case later than a fortnight after the reception of such accounts.

That if, from death of receiver, miscarriage of mail, or any other cause, the accounts are not here received in time for adjustment, it is required that they shall be made up and adjusted from the monthly returns and monthly accounts.

That if, in the rendition of the monthly returns or quarterly accounts, there are found any defects, errors, or inequalities, the delinquent officer shall be promptly addressed, and, unless followed by a satisfactory explanation, the case will be laid before the Secretary of the Interior.

That all accounts of receivers of public moneys, disbursing agents, surveyors general, and deputy surveyors shall be adjusted immediately after the receipt of quarterly accounts.

To expedite and facilitate future adjustments, it is made the duty of the accountants immediately on the receipt of the monthly returns to examine and compare the same, so as to test their accuracy, and then foot up the columns of acres, money, and commissions, noting the result at the foot of each return, and to prepare an exhibit of the result.

It is further required that all balances shall be kept down, and that this shall be done by telegraph or otherwise, requiring the deposits to

be made promptly, and in no case allow more than \$2,000 to remain in the hands of a receiver at the end of a quarter.

It is required that there shall be prepared at the close of each month a regular balance sheet, showing the status of each receiver as to his liability, and the measures taken to secure the government by enforcing deposits.

The account required from a receiver at the termination of each quarter, as stated in the last annual report, is to exhibit to the credit of the United States all moneys received within that period from sales of the public lands, homestead entries, fees for locating military warrants and agricultural college scrip; also for filing pre-emption declarations and adjusting claims; and to the debit of the government all payments made by them either upon drafts or into the treasury. In the disbursing accounts, which is to be rendered separate and distinct from that required from him as receiver, the United States is to be credited with the sums placed in his hands by draft for meeting the payment of the current expenses of his office, and debited with the items of moneys paid out or disbursed during the quarter, for salaries, commissions, and legally authorized contingent expenses. The accounts of the character referred to have all been adjusted to the end of the fiscal year, or June 30, 1869, and reported to the treasury.

#### FUND ACCOUNTS.

With the exception of California and Nevada, in which there is no legal authority for the allowance, accounts have been adjusted to December 30, 1868, for the five per cent. fund accruing to the several States upon the net proceeds of the *sales* of the public lands within their respective limits; and in every instance where a balance has been found to be due a State the same has been reported to the treasury with a view to its payment.

RECOMMENDATION THAT THE LAWS INTERDICTING CERTAIN EMPLOYÉS FROM ANY INTEREST IN THE PUBLIC LANDS BE MADE GENERAL, SO AS TO EMBRACE ALL LAND OFFICERS IN THE SEVERAL LAND AND SURVEYING DISTRICTS.

By the tenth section of the act of Congress approved April 25, 1812, (Statutes, vol. 2, p. 716,) for the establishment of the General Land Office, it is declared "that no person appointed to an office instituted by that act, or employed in any such office, shall directly or indirectly be concerned in the purchase of any right, title, or interest in any public land, either in his own right or in trust for any other person, or in the name or right of any other person in trust for himself, nor shall take or receive any fee or endowment for negotiating or transacting the business of the office," under a pecuniary penalty on conviction, and removal from office.

The fourteenth section of the act of Congress approved July 4, 1836, (Statutes, vol. 5, p. 107,) to reorganize the General Land Office, in referring to the officers contemplated by that statute, repeats the inhibition from directly or indirectly purchasing, or in any way becoming interested in the purchase of any of the public lands, containing also the penalty of removal.

While all officers connected with the General Land Office at the seat of government are thus expressly excluded from having the right to purchase or to have any interest whatever in a tract of public land. <sup>11-</sup>

like legal interdict does not extend to the local administration, because by the tenth section of the act of Congress approved May 10, 1800, (vol. 2, p. 73,) it is declared that if "any register shall wish to purchase any tract of land, he may do it by application in writing to the surveyor general, who shall enter the same in books kept for that purpose by him, who shall proceed in respect to such applications, and to any payments made for the same, in the same manner that the registers by that act are directed to follow in respect to applications made to them for land by other purchasers." There is no express authority of law giving the receivers of public moneys the right to purchase, but that right has long been conceded, and is expressly recognized in the Attorney General's opinion of August 12, 1843. As the principles enunciated in the decisions heretofore referred to of the Supreme Court of the United States, viz: at the December term of 1846, (4 Howard, p. 533, 4 Kent, p. 437,) at the United States Supreme Court, December term of 1847, (5 Howard, p. 49,) illustrate the importance of keeping the officers of the local administration free from such relations in dealing with the public lands as might bring their personal interests in conflict with their public duty, the recommendation in the last annual report is respectfully renewed, that the exclusion and interdict in the statutes of 1812 and 1836 be extended to all officers in the local administration. As the registers and receivers are required to adjudicate cases arising under the pre-emption and homestead laws, it is held that those officers are not within the purview of those enactments.

#### REPAYMENT OF PURCHASE MONEY AND CHANGES OF CASH ENTRIES.

In the extended operations of the land system cases of error of entry occur; and also where repayment of purchase money becomes necessary, where the United States are unable to give valid title.

The following are the legislative enactments and official regulations of the department upon the subject:

The laws authorizing repayment for land erroneously sold are the act of Congress approved January 12, 1825, (U. S. Statutes, vol. 4, p. 80, amended February 28, 1859, vol. 11, p. 387,) so as to "authorize the Secretary of the Interior, upon proof being made to his satisfaction that any tract of land has been erroneously sold by the United States, so that from any cause whatever the sale cannot be confirmed, to repay the purchaser or purchasers, or their legal representatives or assignees of the purchaser or purchasers thereof, the sum or sums of money which may have been paid therefor out of any money in the treasury not otherwise appropriated."

All applications to obtain the benefit of these acts must be submitted to the department through the register and receiver of the district office wherein the land is situated, with an affidavit of the applicant stating that the title to the land for which repayment is claimed has not been transferred or otherwise encumbered; at the same time the receiver's duplicate receipt must be surrendered.

Where a patent has been delivered to the patentee, or where the title has been recorded, a deed of relinquishment reconveying the title to the United States must be made; the deed must be recorded and accompanied by a certificate of the officer having charge of the county records, showing that the deed is recorded, and that the records of his office do not exhibit any other conveyance or incumbrance of the title.

Acts authorizing corrections of errors in making entries are the following:



The act "providing for the correction of errors in making entries of land at the land offices," approved March 3, 1819, (U. S. Statutes, vol. 3, p. 526,) and supplementary act of May 24, 1824, (vol. 4, p. 31;) also act approved May 24, 1828, (vol. 4, p. 301,) supplementary to that of March 3, 1819.

The act of 1819 is intended to afford relief to any person where an error in the entry has been occasioned by any original incorrect marking by the surveyor in the field, or by the subsequent change or obliteration of those marks, or by any other error originating either with the surveyor or the land officers. Applications to obtain relief under this act are also to be made through the district office under oath, stating particularly the nature and cause of the error, and must be supported by the best corroborative testimony that can be procured. The case is then to be reported by the district officers, with the testimony, and their opinion thereon, to the department for final decision.

The supplementary act of May, 1824, extends the provisions of the act of 1819 so as to embrace cases where the error was *not* occasioned by any act of the surveyor or land officers, and gives relief where the right of the original purchaser has not been assigned or in any way transferred. The party making the entry, or his legal representatives not being assignees or transferees, must file an affidavit showing the nature and particular cause of the error, that every reasonable and proper precaution had been used to avoid mistake and that the land erroneously entered had not been transferred or otherwise incumbered, accompanied by corroborative testimony. This evidence, with the opinions of the register and receiver as to the existence of the mistake and credibility of each person, will be submitted for the decision of this office, and in all proper cases relief is promptly extended.

By the act of May 24, 1828, the provisions of the act of 1819 are so extended as to embrace *patented* cases. The applications for relief in these cases should be reported in the manner required in those not patented under the act of 1819, and be accompanied by the patent, with the title conveyed thereby relinquished to the United States.

The act of March 3, 1853, (U. S. Statutes, vol. 10, p. 256,) provides for the correction of errors in the location of military bounty-land warrants, and declares the provisions of the act of March 3, 1819, and May 24, 1828, applicable to errors in such locations.

The foregoing laws and official rules are plain and particular in their requirements, but few points being left to the elucidation of official instructions; and a careful attention by applicants to the same will be sufficient to insure correctness in acting under them, thus enabling the department promptly to extend relief in any case of embarrassment, and to secure them their proper rights.

#### INUNDATED LANDS.

*Swamp grant. Acts of Congress March 2, 1849, September 28, 1850, March 12, 1860.*—Under the acts of Congress ceding swamp and overflowed lands to the respective States in which such lands were to be found, there have been, since the passage of the first act, 60,317,586.96 acres selected and reported, as the initiative procedure under these laws.

Of these selections there have been approved 47,990,153.78 acres. The final action of patenting has been extended to 36,784,842.67 acres, to which should be added 8,192,305.64 acres approved under the act of 1849, the mere approval by the terms of that act carrying with it the efficacy of a patent, thus making an aggregate of 44,977,148.31 acres

which have been definitively transferred to the States thereto entitled. The transactions under this head embraced within the year of this report amount to 24,198.29 acres of selections received, 563,302.34 acres formally approved, and 602,684.45 acres patented.

Under the statutes incidental to the swamp grant, viz, the indemnity act of March 2, 1855, and the confirmatory act of March 3, 1857, there have been adjusted within the year cash indemnity accounts amounting to \$2,789 25, and accounts for land indemnity covering 2,186.55 acres. The total amount of indemnity adjusted since the passage of the indemnity act is \$712,351 65 for cash entries of swamp lands, and 630,222.37 acres for swamp lands located with bounty-land warrants.

As the swamp grant, while carrying with it certain stated conditions as the avowed object of the grant, contains no provisions for the enforcement of those conditions, nor means by which it can be even approximately known to what extent the conditions have been complied with, the benefits which may have arisen from this munificent donation must always remain a matter of conjecture. That the grant has exceeded in its proportions the most liberal estimates incident to its origin is well established, and it is equally apparent that the objects which it was thought would be attained through it have been realized to but a limited extent.

It is perhaps unnecessary here to inquire how this unsatisfactory result has been brought about; but the reason which suggests itself as the most obvious is, that the control of vast areas of lands conveyed by the grant, instead of having been retained by the respective States as direct grants, have passed too frequently into the ownership of private corporations and individuals, who have held the lands thus acquired for mere purposes of speculation rather than any direct purpose of immediate reclamation.

That this is to be regretted is the more evident when we consider not alone the moneyed value of the lands, but the wonderful climatic and physical improvements that a thorough compliance with the conditions of the grant would have secured.

The information here presented tends to show that a large portion of lands claimed under the swamp grant are in fact of more permanent worth, when reclaimed, than lands otherwise designated. It is true that in most instances they require some efforts effectually to prepare them for the hand of the husbandman, but so also do our finest forest lands; and the expense and labor of clearing and preparing for the plow the latter would, in most cases, exceed the labor and cost necessary to the complete reclamation of marshy districts.

In the older States of the West, lands of this class which, twenty years ago, were, relatively speaking, looked upon as worthless, have, by the rapid settlement of those States and the consequent absorption of the dry or uplands, together with the incident internal improvements and increased facilities for markets, become, even in their natural marsh character, of great value.

On our western prairies, where nature had done so much to prepare the face of those beautiful regions for the ready hand of the agriculturists, lying, as they do, invitingly prepared for the work of the plow, all tracts which presented obstacles, however slight, to speedy use and occupancy, were liable to be regarded as worthless, when, in fact, they needed but the simplest efforts to render them more productive than the lands by which they were surrounded.

Unlike the sterile and stony lands that characterize mountainous regions, these swamp lands require but one effort at reclamation, and

when reclaimed they present a soil of surpassing fertility. In no sense can they be classed among the *waste* or *worthless* tracts, for all experience, not only in our own but in the older nations of the earth, shows that, properly treated, they become the most permanently fertile and valuable of all classes of lands.

In the States of the South, where rice culture can be profitably prosecuted, these lands in many localities seem to be favorably adapted to that special purpose; and in the event of the introduction of a new element of labor from the Mongolian race, these now unproductive regions may be added to the producing wealth of the nation by the industrious toil of this race, already adept in the culture of the nutritious cereal referred to. In the sections of country where a more rigid climate forbids the cultivation of such grain, these lands, even when unreclaimed, have proved to be of inestimable value in affording those desirable adjuncts to a stock farm, good grass and water. It is to-day observable in the grazing State of Illinois, that as the ranges of prairie, once open to the herds of farm-stock, become inclosed and cultivated, the marshy lands or sloughs are found to be of incalculable value for the purposes named, and return even in their natural condition a profit to the farmer not exceeded by the cultivated fields around them. The conclusion is reached, in view of the foregoing facts, that the lands conveyed to the various States as swamp, even if the conditions of the grant had been carried out by the beneficiaries, would in actual money value still have been of princely proportions. And without this compliance on the part of the States with the conditions of reclamation, the magnitude of the interest conveyed is truly immense. Further, we are confirmed in the opinion that, as a general thing, the gradual settlement of the country, and the necessities of communities either for farming or sanitary purposes, alone instigate the work of reclamation unaided by any direct or indirect influence of the swamp grant.

With these facts before us, the propriety of its further extension by additional legislation may well be questioned; but if extended to new States not now enjoying its franchises, the extension should be coupled with such provisions as may insure beyond doubt the complete reclamation of lands conveyed, and should be so definite in its terms as to render the duty of designating the tracts thus ceded a work of certainty.

#### NEW MEXICO BOUNDARY LINE, DIVIDING THAT TERRITORY FROM COLORADO.

During the past year we have received the final returns of the survey of the northern boundary of New Mexico, on the thirty-seventh parallel of north latitude, from the one hundred and third to the one hundred and ninth degree of longitude west from Greenwich, executed pursuant to an act of Congress of March 2, 1867.

The initial point of the survey is at the northeast corner of New Mexico and the northwest of the Indian country.

The service was performed under a contract with an experienced surveyor, accompanied by an astronomer and assistant. From the initial point the line passes over a level plateau eight hundred feet above the Cimarron Valley, the latter five miles south of the said line. This plateau is covered with fine quality of grass. Deep cañons break from the south side, terminating in the Cimarron Valley. These cañons are almost impassable. Their nearly vertical sides are composed of loose or detached rock in angulated forms of varied dimensions.



Seven miles from the initial point is a valley bearing nearly north and south, formed by the junction of a small stream with the Cimarron. That river, which is four miles south of the boundary, enters a plain with an average width of four miles. The Cimarron Valley was doubtless once the bed of an immense stream. The soil is sandy, but may be made available for agricultural purposes by a system of irrigation. This valley is filled with numerous conical or pyramidal-shaped mounds composed of strata of compact clay of various colors blending beautifully together.

From the initial point to the Ratoon Range, a distance of forty-six miles, the line passes over a spur of the mountains. A portion of this region is a high level plateau, nearly all table land, extending to the north for many miles, and producing grass, while on the south side the prevalent vegetation is the cactus. Game of all kinds is abundant in these mountains, where there is a fair quality of pine and fir timber, fine forests existing on the foot-hills and sides of the mountains.

The most prominent and conspicuous point forming this high land lies to the northwest, and is connected with the plain by a narrow strip or ridge; on this high level plateau, two thousand feet above the Cimarron Valley and five thousand above the level of the sea, and covering many square miles in extent, distinct vibrations of the whole surface are perceptible, while a clear rumbling noise, distinctly heard, indicates hidden phenomena, like a pent-up volcano.

At the forty-sixth mile west of the initial point, beautiful and sparkling springs of crystal-like water are found in abundance, those from the north side of the mountain running into the Purgatory, an affluent of the Arkansas River, and those flowing south into the Canadian. Spanish Peaks rise thirty miles north-west of Trinidad, and are visible along the line from the initial point. Passing up the Cimarron Valley they are seen at a distance of a hundred miles, being the highest peak of the Ratoon Range. The peak of that name, situated east-northeast of the village of Trinidad, Colorado, is of an altitude of six thousand feet, presenting a very broken and prominent outline.

At the forty-sixth mile the road from San Francisco, Colorado, down the Cimarron Valley, crosses the line. From the forty-sixth to the sixty-eighth mile the survey passes over a series of ridges with narrow valley, the waters flowing north into the Purgatory River, the Ratoon Mountains lying on the south, the summit forming for the most part a level plateau.

From the sixty-eighth mile the line again crosses a spur of the Ratoon, entering at the seventy-third mile the valley of an affluent of the Cimarron, thence ascending a bluff to a level plateau having an elevation of a thousand feet; at the eightieth mile the boundary survey crosses the stage road and telegraph line from Santa Fé, New Mexico, to Denver, Colorado, passing via Trinidad, on the Purgatory River.

Trinidad, situated twelve miles north of the line, has a population of five hundred. It is built of adobe, presenting a pleasing appearance for a mountain village, and possessing an active trade.

The valley of the Purgatory, or, as it is sometimes called, Picket-wire, from Trinidad west, toward its source, is an excellent agricultural region, and many fine farms have been opened with substantial improvements, near which is an excellent grist-mill and two saw-mills. The divide between the waters flowing north and south is crossed at the eightieth mile, the waters running north into the Arkansas, those south into the Canadian. The average altitude of this section is five thousand five hundred feet above the level of the sea, yet at this height the culture

of cereals and vegetables is quite successful. One field of potatoes, observed by the surveyor, is said to be equal to any raised in a less elevated region and more favorable country. The summit of the snowy range is passed at an altitude of one thousand two hundred feet. From the peaks over which the surveyed boundary passes, the highest in this range affords a most beautiful view of the entire length of the San Luis Valley and of the main ranges beyond the Rocky Mountains. Snow may be distinguished on the higher points of the peaks, and westward, as far as the eye could see, ranged over a tremendous mass of broken snowy mountains fading away in blue tints in the distance. The trees found on the highest altitudes consist only of scattering pines.

At the one hundred and twenty-ninth mile the line enters the San Luis Valley, which is cultivated to some extent with the aid of a labyrinth of irrigating canals. The village of La Castilla, at the one hundred and thirty-eighth mile, situated on a river of the same name, is divided by the line, the larger portion of the town falling in New Mexico. It is a thriving business place, with a thousand inhabitants.

Fort Garland is situated thirty-four miles north, on a beautiful flat plateau at the base of a high spur of mountains, the principal peak known as "Baldy." A short distance south of this fort is the Calaveras settlement, scattered over a large tract of country along a stream bearing that name. San Luis, a county seat, is fifteen miles northeast of La Castilla. The valley streams all empty into the Rio Grande, which crosses the line on the one hundred and forty-eighth mile, coursing south through a deep cañon seventy feet below the general level of the country, the sides of the cañon being perpendicular. For a distance of four miles north of the line it is almost impossible to descend. The surface of the earth in this immediate vicinity is covered with perforated volcanic stones.

The line leaves the San Luis Valley at the one hundred and sixty-eighth mile, that valley being thirty-nine miles wide at this point; the boundary thence passes over a very abrupt range of low mountains until it reaches the beautiful valley of the Rio Charmer, coursing south where it first crosses the line. The Rio San Antonio and Los Pinos here flow south of the line, and the Rio Conejos on the north, on which the Guadalupe settlement is located, Conejos, on the river of the same name, and San Antonio, on the Los Pinos, being the principal villages in that settlement.

Fort Lowell is situated in the valley of the Charmer, twenty miles from the boundary, south of the one hundred and ninety-sixth mile. There are several old Spanish villages in the valley. Leaving this place, the line passes over a mountainous region, through many fine forests of pine timber, again crossing the Rio Charmer, and thence passing along mountain sides and summits, through valleys of various extent, until it reaches the dividing ridge of the Atlantic and Pacific waters on the two hundred and fourth mile, at an altitude of eleven thousand feet above the level of the sea.

The Rio Navajo lies to the northwest, winding from the summit of the Navajo Mountains, and flowing through a most beautiful series of valleys situated between hills rising abruptly on either side, forming the commencing link of the Sierra Navajo.

A short distance south of the two hundred and fifteenth mile a stream passes through a remarkable cañon, whose sides rise perpendicularly from the valley one hundred feet, composed of granite and sandstone. As the river advances through the cañon it decreases in width and deepens, while the sides of the cañon increase in height two hundred

feet, the face of the walls being as smooth and upright as if fashioned by the hand of an artisan. Seven hundred feet from the entrance the stream becomes narrow; the water rushes through like a torrent. A few hundred feet further the stream with a gentle current flows through a beautiful valley. The Sierra Blanca lies fifteen miles north of this point.

The Rio Navajo empties into the Rio San Juan three miles north of the two hundred and twenty-seventh mile. This latter stream is the most important in the country except the Rio Grande. It touches the boundary first on the two hundred and thirty-first mile, and finally crosses ten miles further west, flowing thence in a southwesterly direction, having its source in a number of small lakes in the Sierra San Juan, and is supposed to be in length four hundred miles. All the streams from the north on the residue of the line empty into the San Juan. The valley of this stream embraces many different varieties of soil and surface. At Pagosa, near the foot of the Sierra San Juan, there are large tracts of beautiful table lands and immense forests of excellent pine.

Notwithstanding the high altitude, the valleys afford fine grazing. Leaving this stream and proceeding westward in the survey, the boundary crosses the Rio Los Pinos at the two hundred and fifteenth mile, the Los Animas at the two hundred and sixty-sixth, the La Plata at the two hundred and eighty-third, and the Los Mancas at the two hundred and thirty-fourth mile. These valleys vary in width from fifty feet to three miles, and are susceptible of cultivation. La Plata Valley is cultivated by the Ute Indians, and their crops of corn are reported as being equal to any raised in the States. The streams are all fringed with pine, aspen, beach, and willow, with pine and cedar on the mountain slopes. The Rio Los Mancas courses through a deep cañon, where it crosses the line with vertical walls, along the top of which are seen immense boulders.

The surveyor reports the evidences of former civilization, in the shape of castles in these immense rocks, the ruins of some settlement. They were arranged apparently for defense, being in various positions. In this cañon, and for forty miles eastward, pottery of different shapes was found, with flint arrow-heads. At the mouth of this cañon, where it terminates in the San Juan Valley, is an isolated vertical mass of rocks and stone, four hundred feet high. A circular mound extends one hundred feet from the level prairie, out of which shoots a pier in height three hundred feet. North and south in this valley are various similar masses of rock and earth, which have the appearance in the distance of cathedrals and immense buildings, this valley resembling the San Luis, though not so fertile.

Three miles from the terminal point is a high ridge, upon which lies a mass of volcanic stone and gravel, having been ejected apparently from the crater of an eruptive volcano.

A few miles further east the surveyor discovered in a deep cañon immense boulders, composed of minute shells perfectly white. On the Rio Navajo sulphur springs are reported of various sizes, with a marsh between them and the river, the largest spring having a diameter of twenty feet, situated in a low ravine, and having a continuous bubbling flow. Near the Rio La Plata is a magnesian spring of the finest quality, also bubbling and flowing in a continuous stream of twenty-five barrels per diem. In the vicinity of Ratoon Pass many large beds of bituminous coal were discovered in veins of a thickness from one to five feet. From Trinidad to the source of the Purgatory the mountain sides show



a continuous cropping out of this valuable fuel. The best and largest beds of bituminous coal have there been discovered, extending through the mountains and under the level surface, with, in one place, eighty acres exposed. Coal of various qualities, and in apparently inexhaustible quantities, is to be found on this parallel from the San Luis Valley westward to the terminal point of this survey—canal coal of good quality existing on the San Juan and La Plata Rivers.

This region has been imperfectly prospected as to the more valuable minerals in view of the hostility of the Indians, but gold and silver lodes are believed to exist in all these mountains, which it is supposed will yet prove a valuable mining region. Extraordinary changes of the magnetic variation are noted in many places, indicating the existence of quantities of magnetic iron.

The whole length of this surveyed line, which is the boundary between New Mexico and Colorado, is three hundred and thirty-one and three-fourths miles. In the survey involving astronomical determinations, eleven astronomical stations were established, while one thousand five hundred observations were computed and final results therefrom deduced.

#### CHANGE IN THE BED OF THE MISSOURI RIVER ABOVE DAKOTA CITY, IN NEBRASKA.

By instructions from this office of February 12, 1868, authority was given for a survey, incident to a change in the course of the Missouri River above Dakota City, in Nebraska, affecting former surveys in that State and in Dakota Territory. From the report of the surveyor general, it was found that the river had forsaken its former channel between townships 28 and 29 north of ranges 8 and 9 east of the sixth principal meridian, and townships 88 and 89 north of ranges 47 and 48 west of the fifth principal meridian in Dakota. A diagram, accompanying the surveyor general's report, shows two lakes, the localities of which are part of the original bed of the river, but as they are likely to dry up at no distant day, they were not considered meanderable, and it has been ordered that the lines of public survey be extended over them, as in the case of shallow lakes. It appears that the river has permanently changed its channel, and that its former bed is now arable land, of alluvial formation, with luxuriant growth of vegetation.

By the act of Congress approved May 30, 1854, (U. S. Statutes, vol. 10, p. 277,) organizing the Territory of Nebraska, it was provided that the eastern and northeastern boundary line should pass down the main channel of the Missouri, and the act of March 1, 1867, (U. S. Statutes, vol. 13, p. 47,) admitting Nebraska into the Union as a State, provides that said boundary line shall pass down the middle channel of the Missouri. As the channel of that river had been subject to many fluctuations prior to the change in its bed, which at the place referred to is now nearly all dry and covered with sedimentary deposits, the surveyor general was instructed to adopt the *middle* of the old bed of the Missouri river as the jurisdiction line separating Nebraska from Dakota. The fact that the channel of the river had thus been changed by a sudden rush of waters is not held by the Commissioner as making any change in the political jurisdiction of the adjacent localities. After running this line of demarcation, the surveyor general was directed to cause an extension to be made of the lines of the public surveys formerly interrupted by the Missouri River, and to close on that line of demarcation the surveys falling within the respective jurisdictions of Nebraska and Dakota, as illustrated in the accompanying diagram.

## DUTIES ENJOINED BY LAW ON THE GENERAL LAND OFFICE IN REGARD TO THE SURVEY OF INDIAN RESERVATIONS AND THE ISSUING OF PATENTS FOR INDIAN LANDS.

In the sixth section of the act of Congress approved April 2, 1864, (U. S. Statutes, vol. 13, page 41,) it is declared that hereafter, "when it shall become necessary to survey any Indian or other reservations, or any lands, the same shall be surveyed under the direction and control of the General Land Office, and as nearly as may be possible in conformity to the rules and regulations under which public surveys are made."

The first section of the act of May 5, 1864, (Statutes, vol. 13, page 63,) delegates like authority in respect to certain Indian reservations in Utah, and requires the survey of "the several Indian reservations heretofore made or occupied as such in the Territory of Utah, excepting Uintah Valley," "into tracts or lots not exceeding eighty acres each, under the direction of the Commissioner of the General Land Office."

Under the law first above mentioned the survey of the Cherokee neutral lands in southeastern Kansas, as provided in the treaty of July 19, 1866, was contracted for in August, 1866, and the deputy instructed first carefully to establish the boundaries so as to preserve the full limits contemplated in the treaty; then to extend the standard township and section lines over the tract in accordance with the public-land system. The survey of the Osage lands sold to the United States (article 1, treaty of September 29, 1865) was ordered at the same time, and governed by the same instructions. These lands lie on the west of, and are contiguous to, the Cherokee neutral lands.

By the second article of the treaty, dated September 29, 1865, with the Osages, a tract twenty miles in width from north to south off the north side of the remainder of their reservation, and extending its entire length from east to west, was ceded in trust to the United States, to be surveyed and sold for the benefit of said tribe.

Contract for the survey of that part of these lands east of the Arkansas River was effected in September, 1866, and the surveyor directed, after establishing the line segregating the ceded lands from the home reservation as far west as the Arkansas River, to extend the public lines over the tract in the usual manner.

In May, 1867, a contract was made for the survey of that part of the Osage ceded tract west of the Arkansas River, extending to the one hundredth meridian west from Greenwich. The surveyor was instructed to extend the sixth principal meridian south from the point of its intersection with the Arkansas River to the extent of twenty miles south of the northern boundary of the Osage ceded lands; then accurately to establish the boundaries of the tract according to the terms of the treaty; and finally to extend the standard township and section lines over the entire tract in the manner set forth in our printed Manual of Instructions for the survey of the public lands.

In order to carry out the provisions of the treaty, dated March 6, 1865, with the Omaha Indians, it became necessary to survey and subdivide their reservation situated in the eastern part of Nebraska and fronting on the Missouri River. The surveyor was instructed carefully to retrace the boundaries of the reservation and so much of the standard lines as fall within the reservation, and permanently to establish the subdivision line described in the treaty. That portion of the reservation south of the subdivision line was subdivided into forty-acre parcels by running, in addition to the usual sectional boundaries, lines through the sections,

both north and south and east and west, and establishing corners every twenty chains on all the lines. That part north of the subdivisional line was sold to the United States, the object of the government in purchasing being to locate thereon the Winnebago tribe; the tract has been subdivided according to the usual method.

Complete returns of the survey of the aforesaid reservations have been received at this office, the areas of the same as ascertained by actual measurement being as follows:

Tracts surveyed.	State.	No. of acres.
Cherokee neutral lands .....	Kansas .....	798, 613
Osage sold lands .....	do .....	871, 751
Osage ceded lands .....	do .....	3, 170, 186
Omaha home reservation .....	Nebraska .....	205, 335
Omaha reserve, for Winnebagoes .....	do .....	97, 497

Under the provisions of the third and fourth articles of the treaty of February 19, 1867, with the Sisseton and Wapeton bands of Dakota or Sioux Indians, and act of April 10, 1869, making appropriation of \$45,000 for the survey of their reservation lying immediately west of Lake Traverse, in Dakota, the survey was contracted for and the deputy instructed to establish the boundaries of the reservation and extend the lines of the public surveys over the same, running in addition to the usual subdivisions north and south and east and west lines through each section, establishing corners every twenty chains on all the lines.

The survey of the reservation for the Navajo Indians, situated in north-western New Mexico and northeastern Arizona, set apart under the treaty of June 1, 1868, is now in progress. The surveyor was instructed to establish the boundaries of the reservation astronomically, in accordance with the description given in the second article of the treaty, and to adopt the southern boundary as the special base from which to extend the subdivisional surveys. Should the topographical features of the country prove favorable, the eastern boundary will be adopted as the special meridian governing the subdivisional surveys; but if a better locality should appear, the meridian will be established within the reservation, and the standard, township, and section lines extended east and west over the lands suitable for agriculture to the extent allowed by the appropriation of \$36,220, per act of April 10, 1869.

Under the act of May 5, 1864, requiring the survey of "the several Indian reservations heretofore made or occupied as such, excepting the Uintah Valley," into tracts or lots not exceeding eighty acres each, instructions were issued to the then surveyor general of Colorado and Utah to enter into contract for the survey of the Deep Creek, Corn Creek, San Pete, and Spanish Fork reservations. The surveys have been returned to the department, the areas of the several reservations being as follows:

	Acres.
Deep Creek .....	30, 009
Corn Creek .....	62, 664
San Pete .....	65, 973
Spanish Fork .....	11, 253

#### MENDOCINO INDIAN RESERVATION, CALIFORNIA.

Authority was given by law for the establishment of certain Indian reservations in California, or in Utah and New Mexico, for the protection



of the Indians. One of these, known as the Mendocino, was ordered May 22, 1856, by the President, its limits, however, not having been fixed by actual survey until 1868-'69. It is situated on the west coast of California, having for its northern boundary a line one mile north of Beedloe Creek; for its southern the south bank of the Noye River. The reservation extends from the coast eastward for quantity, yet is limited to twenty-five thousand acres, so as to include the valleys beyond the first range of hills to the Coast Mountains.

By the sixth section of an act of Congress approved July 27, 1868, (Statutes 1867-'68, p. 223,) this reservation was restored to the mass of public lands, and the Secretary of the Interior directed to cause the same to be surveyed and offered for sale, for money only, in legal subdivisions, at not less than \$1 25 per acre; the act requiring the purchasers of tracts in the reserve to pay for all improvements thereon by the government, at the rates appraised by the register and receiver of the land district; and further, that all improvements made prior to the passage of the act should be the sole property of the persons who made them, with the right of purchase to the extent of six hundred and forty acres, to include the improvements.

In accordance with the provisions of this act, instructions to the surveyor general of California for the subdivisinal survey of the reservation were issued from the General Land Office August 8, 1868, and approved by the department. The returns, which were approved May 14, 1869, embrace 24,930.08 acres, and the survey having been found correct, the same was approved on the 15th June following, with directions to the surveyor general to transmit duplicate plats to the register and receiver of the proper local land office, so that the duties devolved on those officers under the special law and the instructions may be duly carried into effect.

#### OSAGE INDIAN LANDS IN KANSAS.

The Osage Indian lands acquired by treaty with the Great and Little Osage Indians, made September 29, 1865, lying in the southern part of Kansas, embrace 4,041,937 acres, of which the surveys have been completed, and plats duly filed in this and the district land office at Humboldt, Kansas.

A question arose as to the right of railroad companies under the amendment to the first article of the treaty. The decision of the Commissioner of the General Land Office in the matter was reversed, on appeal, by Mr. Secretary Browning, who decided that the amendment conferred rights upon the railroad companies, and accordingly the lands embraced within the grants were withdrawn on account of such grants.

A proclamation was afterward issued by the President for the sale of the remaining tracts; but subsequently the indefinite postponement of the sale was ordered, and no further disposal of the lands was authorized until the passage by Congress of the following resolution, approved April 10, 1869:

That resolution directs "that any *bona fide* settler residing upon any portion of the lands sold to the United States by virtue of the first and second articles of the treaty concluded between the United States and the Great and Little Osage tribe of Indians, September twenty-ninth, eighteen hundred and sixty-five, and proclaimed January twenty-first, eighteen hundred and sixty-seven, who is a citizen of the United States, or shall have declared his intention to become a citizen of the United States, shall be and hereby is entitled to purchase the

same, in quantity not exceeding one hundred and sixty acres, at the price of one dollar and twenty-five cents per acre, within two years from the passage of this act, under such rules and regulations as may be prescribed by the Secretary of the Interior: *Provided, however*, That both the odd and even numbered sections of said lands shall be subject to settlement and sale as above provided: *And provided further*, That the sixteenth and thirty-sixth sections in each township of said lands shall be reserved for State-school purposes, in accordance with the provisions of the act of admission of the State of Kansas: *Provided, however*, That nothing in this act shall be construed as in any manner affecting any legal rights heretofore vested in any other party or parties." The full effect of this resolution became the subject of controversy, it being held on the one side that all the lands ceded by the treaty were opened to settlement, while on the other it was contended that the railroad rights were protected by the last proviso. The terms of the resolution are express as to the rights of actual settlers, while these terms were held as recognizing the rights also of the railroad companies as affirmed by the decision, dated November 8, 1867, of the late Secretary. In this view, instructions were prepared for the district land offices to the following effect: That the said resolution is designed to protect and secure the rights of *bona fide* settlers of the class contemplated by the resolution, who may prove up and pay for their claims prior to 10th April, 1871, except where a valid adverse right exists; that it further recognizes the grant to the State, for school purposes, of the sixteenth and thirty-sixth sections, and were designed to protect the rights of the railroad companies under the provisions of the treaty as interpreted by Secretary Browning. The officers have accordingly been directed to regard as set apart for the railroad companies the lands which had been previously withdrawn, and to allow no pre-emption filings thereon; but where settlers could show *bona fide* settlements prior to the withdrawal, such prior settlements were protected by the act of March 27, 1854, "for the relief of settlers on lands reserved for railroad purposes;" to reserve the sixteenth and thirty-sixth sections for school purposes, having due regard, however, for the rights of settlers coming within the terms of the resolution of March 3, 1857, (Stat., vol. 11, p. 254.) wherein it is provided that where settlements are made upon such sections prior to survey the settlers shall have the right to purchase as if such tracts had not been previously reserved for school purposes.

The district officers were ordered to give public notice of thirty days that, upon a fixed day, they would be prepared to receive declarations of settlement, and where parties desired proof of settlement, with payment for their claims.

These instructions received the approval of the honorable Secretary, and have been transmitted to the officers at Humboldt, Kansas.

#### DUTY OF THE GENERAL LAND OFFICE IN REGARD TO INDIVIDUAL INDIAN RESERVATIONS.

In the earliest period of our history the principle was adopted, in dealing with Indian tribes, of interdicting cessions by them to individuals, and of requiring that the transfer of the usufructuary claim should be made to the United States. This rule is coincident with the policy which had been observed in the English colonies, and with the proclamation, in the year 1763, of the King of Great Britain. Our relations in this respect are forcibly presented in the able and elaborate opinion of

the Supreme Court of the United States in the case of *Johnson vs. McIntosh*, (8 Wheaton, Supreme Court Reports.)

In numerous Indian treaties, however, the United States have agreed to grant multitudes of individual reservations, with stipulations, in some, that the title shall be a fee simple to the reservee; in others, that the fee shall pass, yet with the condition that a sale by the patentee shall not become effective except upon the approval of the executive. Pursuant to such stipulations, it is the duty of the General Land Office to issue the patents; such issues, however, being purely a mechanical act based upon verified returns from the Office of Indian Affairs.

Patents in the aggregate have been issued by this office to such individual reservees for nearly three millions of acres, under treaties with the Shawnees, Kickapoos, Ottawas, Senecas, Kaskaskias, Peorias, Piankeshaws, Weas, Yanktons, Wyandots, Sacs and Foxes, Chippewas, Stockbridges, Winnebagoes, Delawares, Omahas, Iowas, Kansas, Poncas, Pawnees, Pottawatomies, New York Indians, Miamis, Choctaws, Creeks, Osages, Otoes, Cherokees, Quapaws, and mixed bloods.

#### FOREIGN TITLES—FRENCH, SPANISH, BRITISH, AND MEXICAN.

The policy of the United States, in the adjustment of such titles, has been one of unexampled liberality, securing to parties the lands to which they claimed titles from the lawful authorities of government which once held sovereignty over territory now within the limits of the republic.

The practice of the government has been to extend confirmation to all claims founded on titles in form, orders of survey, and even to premises to which no written title is recorded, where the claimants had actual settlements before change of sovereignty.

The liberality of our government is shown in the acts of congressional confirmation, and in the decisions of the United States judicial tribunals. Thus, for example, in the case of *Soulard et al. vs. The United States* (4 Peters, page 511) the Supreme Court held, that even if there had been no stipulation in the treaty by which Louisiana was acquired protecting the inhabitants of the ceded territory in the free enjoyment of their property, "the United States, as a just nation, regard this stipulation as the avowal of a principle which would have been held equally sacred, although it had not been inserted in the treaty;" and in the same case the principle is enunciated that "the term property, as applied to lands, comprehends every species of title, inchoate or complete. It is supposed to embrace those rights which lie in contract—those rights which are executory as well as those which are executed. In this respect the relations of the inhabitants of Louisiana to their government is not changed. The new government takes the place of that which has passed away."

In the case, also, of *Delassus vs. The United States* (9 Peters, page 117) it is asserted that, although the right of property, whether inchoate or by complete title, had not been protected and secured by treaty, yet "this right would have been secured independent of the treaty. The sovereign who acquires an inhabited country acquires full dominion over it; but this dominion is never supposed to divest the vested rights of individuals to property." And in the case of *The United States vs. Percheman* (7 Peters, page 51) it is held that, "even in cases of conquest, it is very unusual for the conqueror to do more than to displace the sovereign and assume dominion over the country. The modern usage of nations, which has become law, would



be violated; that sense of justice and of right which is acknowledged and felt by the whole civilized world would be outraged if private property should be generally confiscated and private rights annulled, on a change in the sovereignty of the country. By the Florida treaty, the people change their allegiance—their relation to their ancient sovereign is dissolved—but their relations to each other and their rights of property remain undisturbed. Had Florida changed its sovereign by an act containing no stipulation respecting the property of individuals, the right of property in all those who became subjects or citizens of the new government would have been unaffected by the change. It would have remained the same as under the ancient sovereign.”

References to the same import might be multiplied, but the immense number of claims, under nearly every phase of title, which have been confirmed by our government from an early period of its existence, shows, in practice, its scrupulous observance in this respect of the public law and treaty stipulations.

The claims of this kind in Louisiana, Florida, Missouri, Arkansas, Alabama, and Mississippi, presented to boards of commissioners, are numbered by thousands, covering many millions of acres; and in California alone, acquired by the treaty of 1848 at Guadalupe Hidalgo, Spanish and Mexican claims, to the number of eight hundred and thirteen, were presented, covering immense areas of the valuable agricultural lands in that State; and although only about half the claims acted upon by the board of land commissioners have been reported to this office for patent, yet the patents already issued cover an area of nearly five millions of acres.

The surveys of all such titles are in strict accordance, in measurement, form, and extent, with the land system of the government from which the titles are derived, and are incorporated with the United States rectangular method, presenting, as it were, mosaic irregularities in connection with our rectangular surveys.

#### GEOLOGICAL AND MINERAL INTERESTS.

Preliminary measures have been taken, as indicated in the last annual report, for a collection in this office illustrative of the geology and mineral wealth of the national domain, and of the country at large. To this end chambers have been set apart in the General Land Office, with such an arrangement of the illustrations as will give, at a glance, an idea of the resources of the several political divisions of the republic.

The collection includes a series of all the ores, native metals, useful minerals, coals, salts, sulphur, mineral waters, limestones, marls, native fertilizers, fire and potter clays, and building materials; also specimens throwing light on the geological structure of the country, such as fossils and lithological or rock specimens, arranged on a scientific and systematic basis, with a view of specially exhibiting those minerals which are capable of application to art and manufactures. It is in contemplation to collect, as opportunity may offer, models of all mining and metallurgical machinery, implements, apparatus, and specimens of all the various products of metallurgical processes, such as regulus and mat, slag, and other furnace products; dressed and concentrated ores, amalgam, and tailings; with sections of models and working plans of mines, to illustrate the principles and practical application of mining engineering; such collections being generally arranged either to represent, as a branch of history, the whole series of natural inorganic substances which possess a definite composition, and which together constitute the

mineral kingdom, or on a more utilitarian principle, the latter having regulated the selection and arrangement of the cabinet organized so favorably in the General Land Office.

Agriculture, mechanical arts, and mining, indeed all the forms of labor, are the true foundations of public wealth and prosperity, each of them, upon attaining controlling importance in national affairs, being entitled to receive from the government such recognition by statistical investigation and legislation as the importance of the interest may demand, in order to stimulate new influences into such channels as will best promote the public weal. Every new mining field in operation has thus added its force to the important enterprises first inaugurated on the Pacific slope.

The discovery of auriferous deposits in California was followed by results of national importance. The volume of circulating medium having been largely increased, the values of merchandise were changed; old channels of commerce were found inadequate to existing demands, and thus induced the construction of new and more rapid ones, while a vast field of industry called forth a numerous and energetic population devoted to mining pursuits, thus affecting the whole country to no inconsiderable extent, and giving it new impetus, passing as it were into a new horizon, released from antiquated ideas and incumbrances, and entering upon a destiny the ultimate result of which will prove abundantly successful and beneficial in the realization of anticipations so vital in their character. Toward the accomplishment of these ends the general government has recognized the new influences, and has accordingly, in a liberal and prudent manner, adapted its policy and legislation to the perfection of those means best suited to develop and utilize the resources of the republic.

Among the general interests none were deemed more important than those connected with the public-land system of the United States, and which, under peculiar and general legislation, has rapidly assumed great prominence, owing to the various questions arising from discoveries and natural changes not contemplated when the land system was inaugurated. Hence it becomes a subject of importance to ascertain the extent and value of mineral treasures hidden beneath the surface of the country, and also to learn what success had attended the various modes of exploitation. With this object in view, applications have been sent to governors of States and Territories, as well as to the different scientific institutions and to the corps of land officers, asking their co-operation in such measures by forwarding data and specimens, which, on being classified, become perpetual and invaluable guides to all interested.

The new States and Territories have promptly furnished various and rich materials, consisting of ores and minerals, which have already proven of value to miners and others whose interests are affected by the development of these hidden sources of wealth.

The cabinet formed in the department has assumed a character of the highest importance, and embraces many specimens heretofore unknown to science in the locality where they were discovered.

*Ores of gold and silver.*—In the amount and value of gold and silver ores the United States exceeds all other countries. The Western States and Territories have furnished several new and very interesting minerals. Of the tellurium ores, many of which are rich in gold and silver, or associates of the precious metals, only one, the tetradymite or telluride of bismuth, had been found in this country as a rare associate of gold ores, and exists in Virginia, North Carolina, and Georgia.

According to Dr. F. A. Genth's investigations, (*Silliman's Journal*, Sec.

II,) all the tellurium minerals formerly known in mineralogy, with the exception of *sylvanite* or graphitic tellurium, have been found in Calaveras and Tuolumne counties, California, with several new species—the calaverite, a tetratelluride of gold, and the melonite, a sesquitelluride of nickel.

Among some fragments from Highland, Montana, which are in our collection, is a new mineral—the *montanite*, a tellurate of bismuth, associated with the pure tertelluride of bismuth or *tertradymite*. The second variety of *tertradymite*, that containing sulphur, besides the tellurium we have, is a broad foliated specimen from “Uncle Sam’s lode,” near Helena, Montana. It is associated with the new mineral, *montanite*, quartz, and a minute quantity of tourmaline, containing five per cent. of sulphur, and corresponding with the formula  $\text{Bi}_3\text{S} + 2\text{BiTe}_3$ . From specimens of precious metals in this office it is ascertained that the gold and silver mines occupying the entire valley of the Rio Grande are perhaps the most valuable in this country—a fact also established in the history of that part of Mexico when under Spanish dominion, at which time the hills and valleys of the region now included in New Mexico embraced a flourishing population of thriving miners, indicated on the old maps by two or three towns, where only one small village is found at the present day. So far as the mines are concerned, they and their owners were ruined by unchecked Indian depredations. The yield of the ore from these regions is frequently from three to five hundred dollars to the ton, but a few of our specimens yield by assay over \$19,000 per ton. Many experts who have visited the mines express an opinion that the value of the silver exceeds that of the gold deposits.

Among the silver specimens we have are many of special interest; yet the lack of a suitable chemical laboratory, with furnace, and our limited means, have prevented a satisfactory and thorough examination.

*Ores of copper.*—The varieties of copper ores include native ore, (some of it in large masses and unusually well crystallized,) the black oxides, gray sulphurets, copper glance or vitreous copper, the green carbonates, the silicates of copper, and copper pyrites, in which there is a large percentage of sulphuret of iron. At the Hanover mine, near Hill’s River, and at Santa Rita mines, Grant county, New Mexico, a very remarkable and apparently valuable deposit of virgin metallic copper occurs, which is so pure that it may readily be hammered on the anvil into any desirable shape. The ores of this metal are auriferous, and celebrated in that region, having been worked as early as the year 1780, and have yielded vast quantities of copper. These mines are located six miles east of Fort Bayard, in a country abounding in fuel, fertile, and well watered, but heretofore subject to the incursion of Indians, being in the range of the Gila and Mimbres Apaches.

These mines are among the most valuable of the Territory, containing large amounts of native copper, with easily reducible carbonates and oxides, and are apparently inexhaustible. We have a very remarkable specimen of copper glance from Archer County, Wichita Mountains, Texas. It is pseudomorphous, after wood or vegetable substances, closely resembling similar pseudomorphs found in the Kupferschiefer stratum of the Permian formation at Frankenberg, in Hessia, and at other European localities. It contains 55.44 per cent. of metallic copper, a little malachite, oxide of iron, and carbonaceous matter, and shows the chemical changes which have taken place at different periods in the structure of mineral veins. It exists in that locality in great abundance, so that the mere collection of it would prove remunerative without mining.



These extensive copper deposits occur in the permian formation, a system extensively developed in Russia, between the Ural Mountains and the Volga; in the north of England, and in Germany, where it is mined for its treasures of copper, silver, nickel, and cobalt ores. If this formation were ever known to exist in Texas, it has been mistaken for the triassic system, which is overlying the former to the southeast. Its hills, which have been traced throughout Archer and Wichita Counties, resemble in shape the copper-bearing or gossan-crested upheavals in Ducktown, Tennessee, but they are of a different age and composition, being nearly barren, and towering above the most beautiful mesquite prairies, fringed by the finely-timbered bottoms of the tributaries of Red River. The members of the Wichita system, so far as open to ocular inspection by outcrops of cross-cuts, making allowance for climatic differences, correspond closely with the lower strata discovered at Perm and Mansfield, but its mineral resources are evidently more promising. The veins of this copper are very numerous, and have been traced over the summits and sides of the hills, so that hardly a tract of one hundred and sixty acres can be found without ore on the surface. It is supposed that these veins are contemporaneous with injections, at different periods, of quartz, trap, and porphyry. The vein lodes are parallel with the strata, but there is sufficient evidence that they partake of the nature of true veins. Cupriferous and ferruginous cross-courses, feeders, and leads of manganese, are often met with. A cross-cut was made to the depth of fifteen feet, and in ten hours six thousand pounds of copper ore were produced, which is deemed far superior to the ferrosulphuret of copper, or copper pyrites, generally worked in England, and, in fact, it is more profitable than the native copper found on Lake Superior, being easily smelted, and the strata in which it is found can be more economically excavated than any other in which copper ore occurs.

*Ores of lead and zinc.*—There is also in the General Land Office collection a fair representation of lead and zinc ores from all parts of the United States. They are associated with iron pyrites, zinc-blende, quartz, calcareous spar, barytes, and fluor spar. The lead ores are the usual forms of galena, or sulphuret of lead, containing almost always a small proportion of silver, varying from two to fifty ounces per ton of lead. Galena, when in a condition of greatest purity, is composed of lead, 86.55, and of sulphur, 13.49 per cent. Zinc-blende, or sulphuret of zinc, associated with these ores, is sufficiently abundant to be of great importance for producing lead, yet of much more value as a source of the metal silver.

An immense expanse of territory lying west of the Mississippi is productive of galena in the underlying lead-bearing rocks, from all of which specimens have been received. The presence of silver in the proportion before mentioned has given new directions to the operations of the miners and smelters, the silver often paying the expense of elaboration, leaving as profit 80 per cent. of lead. It is generally very pure galena, but often, besides silver, contains considerable percentage of zinc-blende, iron pyrites, and other minerals. A very curious and interesting instance of this admixture of mineral species, of which specimens can be seen in the cabinet of this office, occurs in the great canal coal vein in the southern part of Moniteau County, Missouri, where zinc-blende, galena, iron pyrites, with calcareous spar, are interlaminated with the canal. In addition to the zinc ore, just referred to, large veins of calamine, an impure carbonate, together with silicate of zinc, accompany the lead veins.

*Ores of tin.*—The ores of this metal are represented in the General

Land Office collection by a very few specimens. The oxidized form of the metal called stannic acid has been detected, in the proportions of one-half and one per cent., in syenitic and dioritic rocks of Madison and other counties in Missouri, which discovery has awakened the hope that a more profitable amount of the metal may yet be found. Judging from unmistakable evidence, it would seem possible that large quantities of tin ore exist in the northeast, since the aborigines made implements of tin, as shown from various articles exhumed.

Extensive deposits are also represented as existing in California, a number of tin ledges, it is stated, having been exposed in San Bernardino County; but we are unadvised either of the geological connections of the veins or the substances with which the ore is mineralized; nevertheless, it is supposed they are easily worked.

*Ores of iron.*—We have a fair representation in our mineral collection of the workable iron ores of the United States, Missouri especially having furnished a large proportion. Iron pyrites, vivianite, mispickel, magnetic iron ores, red hematite, brown iron ore, spathic iron ore, blackband and clay iron stones, are all included.

Prominent among the new localities may be first mentioned the valuable and extensive beds in Llano, Burnet, and Mason Counties, Texas. A specimen from Johnson Creek, Llano County, sent to this office, contains 96.89 per cent. of peroxide and protoxide of iron, with 2.818 per cent. of insoluble silicious substances, giving 74.93 pounds of metallic iron in 100 pounds of ore. The ores are partly magnetic and in part specular oxides of iron; they are analogous to those of the celebrated iron mines in Sweden, and of the Iron Mountains in Missouri. The iron region of this locality is situated in the primary rock formations, surrounded by ridges of granite, intersected by veins of quartz, and associated with red feldspar, gneiss, talc, and chlorite slates. The limestones of the palæozoic and cretaceous rocks are in the immediate neighborhood, from which abundant materials for a flux can be easily obtained.

From Santa Fé County, New Mexico, we have specimens of the protosquioxide of iron. This valuable ore is found in large quantities about twenty-seven miles south of Santa Fé, as also in many other localities of the Territory. It is highly magnetic and polarized, containing seventy per cent. of metallic iron. The presence of chromate of iron in our collection from New Mexico deserves notice, as it is the well-known, though somewhat rare, mineral from which are manufactured many useful, durable, and brilliant paints and dyestuffs, as bichromate of potash, chrome yellow, and chrome green. The demands of commerce have hitherto been almost entirely supplied by ores found in a single workable bed of serpentine rock, which passes down from one of the southern counties of Pennsylvania into the adjoining county of Maryland, and for nearly fifty years has been the undisputed monopoly of a single establishment. The price of this ore and its products might be fixed at the pleasure of the parties, but their exported ore, returning here in manufactured form, meets them in the market, keeping the prices at moderate rates, which may be attributed to the low price of European labor.

The ores of manganese, valuable in the manufacture of Bessemer steel, have also a fair representation in our collection, the specimens being from different parts of the country; but bismuth, molybdenum, wolfram, cobalt, nickel, and antimony, are as yet imperfectly represented,

#### NON-METALLIC MINERALS.

Of the minerals composed chiefly of carbon we have the graphite, plumbago, or black lead, from Pennsylvania, Nevada, and Virginia, the

manufacturing value of which is too well known to require further notice.

Of anthracite or non-bituminous coal we have many fine specimens from localities lately discovered. In Santa Fé County, New Mexico, near the line of the proposed railroad, large beds of pure anthracite are found, the coal evidently being of tertiary origin and appearing to have been metamorphosed by the superincumbency of melted porphyry. The conversion of the bituminous coal of the country into anthracite was found to have been caused by the proximity of a large mass of porphyry forty to fifty feet high, which, by exciting heat, pressure, and chemical influence, has produced the change. The discovery of this coal deposit may be regarded as of as great value to the country as any of the gold or silver veins, since without it railroads could not so successfully penetrate the treeless prairies of the west, the fact having been established that such coal deposits adjacent to proposed routes of railroads are almost absolutely essential.

Abundant evidence is furnished, by specimens received at this office, of the amount and character of coal in New Mexico; and engineers locating roads across that Territory can easily satisfy themselves of a sufficiency existing for the use of their work, when constructed, for all time.

The veins met with in various places vary in thickness from eighteen inches to four or five feet, and are generally of a highly bituminous character. A remarkable exception to this is found in the well-characterized anthracite above alluded to, the only case of the kind known west of the Mississippi River, occurring in various localities from twenty-seven to seventy-five miles south of Santa Fé, in veins from four to seven feet in thickness, and very accessible.

Of the Peacock, or iridescent bituminous coal, we have but one specimen, sent from Cumberland, Maryland, which is remarkably beautiful.

All the other varieties of coal in the collection are numerous, and especially interesting from their differing in geological age; ranging from the imperfect lignites found on the line of the Union Pacific railroad, and those wonderful deposits in Alaska, to the dense and compact masses of cannel. It was ascertained at this office, from specimens collected by Dr. T. J. Minor, of the United States steamer Wyanda, in Alaska, sixty miles north of Sitka, that the coal is of very recent origin, probably tertiary, resembling some of the brown coals of the miocene tertiary basins of Germany. It dissolves completely in nitric acid; on being diluted with water, a resinous substance is precipitated, having an odor similar to pine rosin. It contains 45.772 per cent. of carbon, of volatile matter 35.168 per cent., of water 15.725, of ash 3.335 per cent., and only 0.18 per cent. of sulphur. The ash has a yellowish-brown color, it being quite ferruginous, and has an alkaline reaction. A determination of the caloric power of this coal showed that one part reduces 20.15 parts of lead from the oxide, while pure carbon reduces 34 parts. Of the cannel coals, the name being derived from "candle," because this coal may be ignited as easily as a candle, we have very fine specimens from a vein over fifty feet thick, located in the southern part of Moniteau County, Missouri. It shows a texture as homogeneous as the finest black marble, and is equally capable of being turned on a lathe or subjected to the chisel of the sculptor. The coal bed is worked in a vaulted room now of forty five feet diameter, the whole of which is excavated in the coal, the sides, roof, and walls of the mine consisting of this mineral. There are two descriptions of coal taken out; the first is six feet thick, overlies



the cannel, and contains no lead: the remainder is the "cannel" noticed above.

We have also specimens of asphaltum, or compact bitumen, from Pennsylvania, California, Nevada, and Texas. Sulphur, salts of soda, potassa, rock salt, baryta, strontia, rock crystals, quartz pebbles, moss-agates, onyx, jasper, a variety of precious garnets and agates, chalcedony and carnelian, of beautiful colors and figures, are in our collection as contributions from various parts of the Union. Many of the precious stones when subjected to the skill of the lapidary prove as valuable as those ordinarily found in jewelry establishments. Prominent among these is a ribbon jasper of alternate stripes of brownish yellow and black, found in New Mexico, and is regarded by connoisseurs as remarkable for its uniform beauty.

The greater portion of the silicious minerals hitherto received are rolled pebbles from the streams, showing that when traced to the parent rock many finer specimens may be obtained; among others worthy of notice there are several varieties of petrified wood, some of which, having passed into the condition of agate, and their vegetable fiber having become obliterated by the infiltration of mineral substances, it is impossible to determine the character of the wood.

*Rocks and fossils.*—The ores and other minerals in our collection show the economic substances produced by the rocks; their description will in part form a kind of hand-book to the geology of the United States, which may hereafter be enlarged and perfected when an arrangement shall have been made of a strictly stratigraphical collection. The fossils and illustrative specimens of rocks are well represented in the department, and when completed will give some idea of the different formations of all the political divisions of the country. Specimens of rock materials used in building and architectural ornament have been forwarded to this office in large numbers. Marbles of variegated surface and color constitute by far the larger number of this class, and leave nothing to be desired where beauty and solidity are requisite. Most of them are already known to the public as the so-called Potomac marble—a breccia—the veined marble and the "verd-antique" of Vermont, the variegated marble of Tennessee, the compact magnesian limestones of Virginia, Indiana, Pennsylvania, Iowa, and Kansas, some of them running into a lithographic stone of admirable texture. The most remarkable granite rock received is a red syenite from Texas, which has a color and texture resembling the red granite of Syene, in Upper Egypt, and the beautiful rock from Peterhead, Scotland, now much in use for monuments and tombs, and which receives a polish equal to agate or carnelian. A row of splendid columns of this rock upholds a gallery in the "King's library" of the British Museum, and the ancient Egyptians used this material in constructing their famous obelisks.

Sandstone, gneiss rocks, flags, roofing slates, conglomerates, vesicular basalts, and Georgia buhrstone for milling puposes, white sand for glass manufacture, and a great variety of clays for porcelain, coarse pottery, and for crucibles, have been sent from various districts, indicating the abundant resources of every part of the country, where they may be easily quarried, and which lie within short distance from means of transportation.

It is not surprising that even the broader features of the geology of the lands lying west of the Mississippi and Missouri, and east and west of the Rocky Mountains, should at first have been misconceived, and that authoritative publications should have spread before the public statements entirely illusive as regards their true character; that Maclure should

have marked the whole expanse as secondary; that Marcou should declare it to be triassic; and that the best explorers of the present time should be contending whether the tertiary, the cretaceous, or carboniferous predominates. Crossed by only a few lines of traffic, infested with hostile bands of Indians, remote from the means and facilities of scientific investigation, the facts were slow in accumulating, and deductions took the hue of the prevailing theory in the mind of the explorer. But now the geologist enjoys larger liberty, and the results of his wanderings and investigations show that the immense regions alluded to are likely to furnish problems for solution of deep and varied interest, not involving the deposition of one vast deposit, all prevailing and unchanging, but a series of deposits, reaching from the lowest to the highest mark in geological time, and on a scale equally gigantic with all other natural phenomena of the North American continent. The deposits are of all ages, both fresh water, marine, and igneous, and their sedimentary rocks are crowded with the exuviae of plants and animals. Recent discoveries in the southern part of the basin disclose areas of territory filled with the remains of mammalia and reptiles similar to those which excited so much interest as to the mauvaises-terres in the North, and recently the skeleton of a huge saurian, from Kansas, has reached the museum of the Philadelphia Academy of Sciences, the length of which, judging from the parts of the vertebræ discovered, is estimated at seventy feet.

Europe once filled the mind with wonder at the marvelous evidences of geological formation, but now the eye of science is directed to these basins of the West, the bottoms of the great tertiary and cretaceous seas, to discover new facts and conclusions relative to organic life on the globe.

The numerous divisions into which these strata have been arranged in accordance with the predominance of certain fossils inclosed within them are of the highest interest to the savant, but a detailed account of them would be out of place in this outline. It may suffice to state that the broad plains intervening between the basins of the Mississippi River and the Rocky Mountains exhibit, in one part or another, on this long line of travel, vast spaces covered by the tertiary, cretaceous, jurassic, triassic, and carboniferous, among the sedimentary rocks; and when the explorer ascends the mountain sides, he crosses in quick succession formations older than those previously met with, encountering in turn the permian, the carboniferous, the silurian, and all the forms of metamorphic azoic rocks. Their upturned edges show that they have been thrown into a vertical or highly inclined position by the granites, porphyries, basalts, and other igneous rocks, which form the central body of the great chain of mountains stretching from near the mouth of the McKenzie River, in the North, to the Gulf of Mexico. Once across this dividing ridge, in the basin which reaches to the Sierra Nevada, the naturalist beholds a recurrence of similar deposits, and the conviction forces itself upon his mind that formerly the two basins east and west of the mountains formed the bed of a sea, in which the more recent strata, now constituting the surface, were slowly deposited, but which have since been forced asunder by the upheaval of the mountain system. To this cause are we indebted for the present system of river drainings, and the foundation of vast fields ready for the agriculturist. But above all, the fiery forces from beneath have penetrated the flanks of the mountains, revealing veins of precious metals, and promising remuneration to the laborer, success to the capitalist, and wealth to the nation.

One of our leading industries is undoubtedly the mining interest, so



important in its bearings upon domestic and foreign trade, an industry with which multitudes of our energetic population are identified, and the results of which are essential to the permanent prosperity of the country and are expected, at no distant period, to furnish the necessary metallic basis for the currency of the country.

The gold-mining interests are scattered over a million of square miles and embraced in one thousand five hundred different mineral districts. As the rich placers of gold quartz are not so accessible as in earlier years of exploration, we are admonished of the importance of increasing the product by greater skill and approved methods, the annual loss resulting from unskilled labor in this department of science having been estimated as high as twenty millions of dollars.

We have here an illustration of the necessity of educating a national corps of mining engineers. There is no other plan by which the wasteful methods now prevailing can be checked. Mines which should have lasted for centuries have been ruined, through ignorance, greed, and haste. Many experts engaged in our mines are foreigners. Besides, we send our young men to Germany, France, Hungary, and elsewhere in Europe to be taught this branch of science, when they could be more successfully educated at home if we had institutions equally thorough and comprehensive. The American mining system is quite different from the foreign; hence the necessity of having mineralogists trained on our own soil and acquainted with its peculiarities. The single instance of placer mining is an illustration of the fact. Here it is conducted on a gigantic scale, aided by the ingenuity of mechanical and hydraulic engineering, involving investments in works alone of millions of dollars, while abroad it consists in hand-washing auriferous earth in wooden bowls. Our metallurgic processes, also, have to be constructed and so varied as to suit the ever-changing mineralogical character of the ore.

This is the only government of the great powers where mining forms an important source of wealth without a school of mines, mining bureau, or cabinet.

The course of instruction in such an institution should be of a duplex character. As a foundation, the *élève* should be thoroughly grounded in geology, mineralogy, and chemistry as applied to assaying and metallurgy; then in geometry, drawing, and mechanical instructions, with a view to his duties in metallic and hydraulic engineering. The whole should be supplemented by a knowledge of the French and German languages.

The second part should consist of an experimental application in mineral districts of what has been learned at the institution, the student being required to participate in the sinking of shafts, excavations of tunnels, blasting, assaying, stamping, and other duties incident to the most successful exploitation. In this manner valuable and reliable information will be obtained which cannot be derived in any other way.

In such a course of teaching he will reach the standard of the highest intelligence, become fitted to be intrusted with great mining works, be able to decide nice questions as to the direction of further exploitations, the modification of reducing processes, and generally in the expenditure of the funds of companies by whom he may be employed.

Should such an institution be established at the seat of government, under the eye of the Executive, the ultimate advantages arising from it would be almost incalculable. Here are collected the most important libraries on the continent, and here are found accumulations of natural objects in museums for illustrating this particular subject. At the political capital learned and skillful persons congregate, which, owing to



its geographical position, climate, and general surroundings, is especially adapted to the highest success of such an enterprise.

The establishment of a national school was a favorite project with our first President, which he forcibly stated in an address to the Commissioners of the Federal District in 1795, showing the advantages to the government and the country at large to be derived from such an institution, using the following language:

"It has always been a source of serious reflection and sincere regret with me that the youth of the United States should be sent to foreign countries for the purpose of education. Although there are doubtless many, under these circumstances, who escape the danger of contracting principles unfavorable to republican government, yet we ought to deprecate the hazard attending ardent and susceptible minds from being too strongly and too early prepossessed in favor of other political systems before they are capable of appreciating their own."

In view of the facts submitted herewith, we may safely predict that whatever action might be taken toward founding an institution devoted to mining will ultimately result beneficially to the government in many respects.

#### PROCEEDINGS TO OBTAIN TITLES UNDER THE MINING ACT OF JULY 26, 1866.

In the second section of the mining act it is provided that whenever any person, or association of persons, claim a vein or lode or quartz or other rock in place, bearing gold, silver, cinnabar, or copper, having previously occupied and improved the same according to the local customs or rules of miners in the district where the same is situated, and having expended in actual labor and improvement thereon an amount of not less than one thousand dollars, and in regard to whose possession there is no controversy or opposing claim, it shall and may be lawful for said claimant or association of claimants to file in the local land office a diagram of the same, so extended laterally or otherwise as to conform to the local laws, customs, and rules of miners, and to enter such tract and receive a patent therefor granting such mine.

The third section requires a like diagram to be posted in a conspicuous place on the claim, together with notice of intention to apply for patent. A similar notice is to be published by the register in a newspaper nearest the location of the claim; the register being also required to post the same in his office.

These notices are to be posted and published for the period of ninety days, after which, if no adverse interest shall have been filed, it is made the duty of the surveyor general, on application of the party, to survey the premises and make a plat thereof. If no adverse claimant has appeared prior to the surveyor general's approval of the survey, the applicant for patent is authorized to make payment to the United States receiver of public moneys of five dollars per acre, together with the cost of survey, plat, and notice, and furnish satisfactory evidence that the diagram and notice were posted on the claim during the aforesaid period of ninety days. Thereafter it is made the duty of the register of the district land office to transmit to the General Land Office the plat, survey, and description, that a patent may issue thereon.

The claimant may be either an individual or an association of persons; and in pursuance of statutory provisions is required to make his application for a patent at the district land office, and file with such application a diagram of the claim.

The only mineral lands patentable under this act are those bearing gold, silver, cinnabar, or copper; and the only persons entitled to apply for and receive patents are those having previously occupied and improved their claims according to the local customs and rules of miners in the respective mining districts, and who have expended in actual labor and improvements on each claim an amount of not less than one thousand dollars, as hereinbefore indicated.

Conflicting claims to mines or mining lands cannot be adjusted in the land office, but are referred by the express provisions of the act to the courts of competent jurisdiction for determination. Hence, if a controversy exists in regard to the possession of a claim, the adverse interests must first be adjudicated before it is in condition for patenting.

The statutory limit to the time during which an adverse claimant may appear is up to the time of the surveyor general's approval of the survey. If, previous to such approval, an opposing interest is presented at the district land office, further proceedings must be stayed for action in courts competent to determine the rights of the contestants, after which the successful claimant will be entitled to patent.

If no adverse claimant appears before the approval of the survey, there is no authority for suspending proceedings for patent in order to permit an adverse party to file his claim after that, provided the proceedings have been regular and free from fraud. The mining act does not state in express terms that the application must be in writing, but as official transactions are usually in writing, and much inconvenience might arise from mere verbal applications, the duty of reducing them to writing is implied and held to be necessary.

As the district land officers cannot be presumed to know whether or not an applicant for patent had previously occupied and improved his claim according to the local customs or rules of miners, or whether the diagram conforms to such customs or not, it is held proper that reasonable proof on these points should be filed with the application. This may consist of a certificate of the mining recorder, with a transcript from his records of the original location, with names of locators, and so much of the mining customs as relates to the size of locations or number of feet along the vein authorized to be taken by each locator or company. If the records contain a regular series of conveyances from the original locators to the applicant for a patent, the certificate of the recorder should state that upon diligent search he finds upon the records such regular chain of title, referring to the volumes and pages; should the certificate cover the three points of original location, mining customs, and series of conveyances, constituting a regular chain of title from the locators to the applicant for a patent, no further testimony as to previous occupancy and conformity to mining customs need be furnished.

In the event of the record not furnishing such evidence of title, from any cause whatever, the necessary facts may be established by affidavit, stating the length of time the applicant has occupied and improved the claim, the character of the improvements, and the requirements of the mining customs touching the size of locations at the time they were made. Such affidavit should also explain the absence of record evidence.

In either event, whether the proof consists of a certificate of the recorder, or an affidavit of persons familiar with the facts, the expense and trouble of furnishing it must be trifling.

The applicant should also file with his application and diagram a copy of the notice posted on the claim, that it may appear to the land officers that it meets the requirements of the statute.



If the parties applying for patent are an incorporated company, evidence of that fact being produced by filing with the application a certified copy of the charter or act of incorporation, no proof of citizenship will be required.

On the other hand, if the applicants are not incorporated, one or more affidavits will be necessary to prove that they are citizens of the United States, or have filed declarations of intention to become citizens. Such affidavits may be made by the applicants themselves, and the necessary facts should be fully set out as to place of birth, the court in which declaration of intention was filed, and the date of such filing.

The papers proper to be filed with the application are therefore, first, the diagram; second, a copy of the notice posted on the claim; third, a certified copy of the charter, or act of incorporation, or, if applicants are not incorporated, an affidavit of citizenship, or of filing declaration of intention to become citizens; fourth, a certificate of the mining recorder, or, in lieu thereof, an affidavit as to occupancy and improvement according to mining customs.

These documents being satisfactory to the register and receiver, no further testimony is required from the applicant until after the approval of the survey by the surveyor general, and the filing of the plat and survey in the district land office, when the further testimony must be furnished that the notice and diagram were posted on the claim during the period of ninety days. This proof may also be presented in the form of an affidavit, and it would be well to include in this affidavit a statement that according to surface indications, or any facts within the knowledge of claimants, or other persons familiar with the claim, the premises included in the plat and survey contain but one vein or lode, inasmuch as no patent is to issue for more than one vein or lode. Evidence as to the value of the improvements and character of the vein exposed is furnished by the surveyor general by indorsement upon the plat.

These proceedings, it would appear, can neither be expensive nor complicated. All the documents may be prepared by the applicants, or by any person of ordinary intelligence.

The application should state all the facts necessary to entitle claimant to apply for patent: such as having previously occupied and improved the claim according to local mining customs; having expended thereon in actual labor and improvements an amount of not less than one thousand dollars; that the mine is one producing either gold, silver, cinnabar, or copper; that applicant has posted diagram and notice in a conspicuous place on the premises as required by law; that the applicants are an incorporated company, or, if such is not the case, that they are citizens, or have filed declaration of intention to become citizens, and that a diagram of the claim is filed with the application. It should always contain a description of the premises as represented in the diagram.

#### OF THE EARLY PROCEEDINGS UNDER THE UNITED STATES MINING LAW.

During the first eighteen months after the passage of this enactment by Congress, delay occurred from want of familiarity on the part of the occupants of mines, and also in the local administration, in regard to the proceedings required. This inconvenience was at first unavoidable, and is not unusual in the execution of new enactments. It is now in great measure removed by the adoption of a system of rules, after a careful and thorough analysis of the subject, by which the liberal intentions of the framers of the law are being realized.



In some of the earlier cases reported it was brought to light that claims might be asserted, under new names, to old mines having expensive improvements thereon, without the knowledge of the real owners, in consequence of the notices being published and posted during their temporary absence, or, in remote and unoccupied districts, during the suspension in winter of mining operations.

The only way to prevent occasional acts of injustice in issuing patents to parties not entitled to them under the law is to require every claimant to file with his application some appropriate evidence of his possessory title under the local rules or customs of miners in the district in which his claim lies.

#### EFFECT OF THE LOCAL MINING CUSTOMS AND LAWS.

It was evidently the intention of the framers of the mining act not only to recognize the validity of these local mining customs and laws, and rights acquired under them, but to interfere as little as possible with them; and in administering the act this policy is steadily kept in view in this office, and patents are only issued to claimants holding the possessory right under and by virtue of such mining regulations.

In some of the States and Territories these local customs and rules of miners are enacted by the miners themselves, at miners' meetings, and observed as rules in their respective districts. In other cases the legislatures of the States and Territories have passed general laws prescribing rules by which all the miners in the several districts are governed.

It has been insisted sometimes that territorial legislatures have no power to pass laws limiting mining claims, for the reason that the organic laws of such territories inhibit such legislation from interfering in any way with the primary disposal of the soil, and that the mining act of Congress recognizes not these enactments of State or territorial assembly, but the customs of the miners themselves.

It is held by the Commissioner that a State or territorial enactment regulating a mere *possessory* claim is in no way in conflict with the congressional enactment, but is in subordination to the constitutional power of Congress to deal as may seem most proper with regard to the disposal of the national domain, whether mineral or agricultural; and even if there were in fact any interference by a territorial act with the primary disposal of the soil, it was perfectly competent for Congress, by subsequent legislation, such as the mining act, to legalize the same, even though it were at variance with territorial organic law; and as the mining law extends the privilege of applying for a patent only to such as have previously occupied and improved their claims according to the local customs and rules of miners in the respective districts, the congressional enactment evidently recognizes the binding force of such rules.

With regard to the point sometimes made that the mining act recognizes only the regulations adopted by the miners themselves, and not the enactments of the territorial legislature, it is replied that the question as to how or by whom the rules or customs were passed or enacted is not at all involved.

The real point is, what are the regulations by which the miners in the several districts determine the validity of claims; what body of rules are applied to them when questions of conflict come before the local courts; and what laws are appealed to in cases where records are made or notices filed with the mining recorder, or when forfeitures are declared. The regulations controlling in such cases are the rules recognized by the

mining act of Congress; and whether the miners adopted them at miners' meetings or found them in a volume of territorial statutes is a matter of entire indifference, providing they use them in determining the nature and extent of mining rights.

It has been suggested that no authority is conferred upon the territorial assembly to prescribe mining rules. Clearly no authority had previously been conferred upon miners' meetings to pass laws or rules of an obligatory character, and yet it is admitted the mining act recognizes such regulations; and certainly, if an act of Congress can impart a legal character to rules adopted by a mere town meeting, it is equally competent for Congress to give binding force to a territorial statute, even if in the first instance there had been a want of power to pass such statute.

It is not doubted that a territorial act setting apart in perpetuity a certain number of feet on every newly-discovered lode for the benefit of the public schools, adopted in one or more Territories, would be void for want of power in the territorial legislature to pass such an act: because, if not void, the United States government would be precluded from selling the reserved portion of these lodes to whomsoever it chose to make its vendee. This would be an interference with the primary disposal of the soil, and hence void unless legalized by a subsequent act of Congress. The question as to what rules are in vogue among the miners and what is prescribed by them are matters of proof to be furnished by applicants for patents.

#### STATUS OF AGRICULTURAL LANDS IN MINING DISTRICTS.

Representations were made to this office that farmers, who had for years occupied and cultivated some of the finest agricultural lands, were interfered with by gold-seekers endeavoring to develop placer deposits beneath the surface of their fields; and that such farmers were deterred from erecting valuable buildings, setting out orchards, or making other improvements of an expensive and permanent character.

In view of such representations, the register and receiver of the proper district were instructed to the following effect: That as there are many tracts in what are called the mineral districts of no value for mining purposes, but well adapted to agriculture and horticulture, it would be a benefit to the country to promote their settlement and improvement by permanent residents, it not being the policy of the United States to keep such lands open for exploration for an indefinite period, from the mere possibility that some day or other gold, silver, cinnabar, or copper, might be discovered thereon.

The local officers are instructed to endeavor to prevent unnecessary litigation and improper obstructions being thrown in the way of making agricultural entries where the tracts are more valuable for agriculture than for mining.

If a tract, say forty acres, has a mine upon it occupied and worked by the occupant in pursuance of the mining customs, there certainly can be no trouble in proving the fact, and it requires no tedious and expensive investigation to determine whether the same is subject to entry under the pre-emption or homestead law. If, on the contrary, the adjoining forty-acre tract is well adapted to farming or gardening, and has never had thereon a mine, and presents no positive indications of valuable deposits of precious metals, the facts are capable of ready proof.

A certain subdivision either has a mine upon it, and is occupied by miners in pursuance of the mining customs of the district, or it is not

improved and occupied as a mine. In either case the facts may be readily and satisfactorily established by proof.

If it is occupied as a mine, or if a vein of quartz or other rock in place, bearing gold, silver, cinnabar, or copper, has there been traced, it is mineral land; but if it has no existing mine upon it, and no metalliferous vein of quartz or other rock is known to pass through or penetrate the tract, the land is not properly classed as mineral, although, contrary to present indications, gold, silver, cinnabar, or copper may at some future time be discovered upon it.

One part of a quarter-section may be mineral land and another only fit for agriculture, but it does not follow from one forty or eighty acre tract having mining improvements upon it, that the other eighty cannot be entered under the pre-emption or homestead law.

Where a mine exists, the miner should be allowed such additional quantity of land as may be necessary for the convenient working of the mine, but beyond this he ought not to be permitted to interfere with the disposal of the public domain; and if the residue of a quarter-section is farming land, it should be disposed of accordingly.

These questions of contest, it is supposed, generally arise upon lands claimed to contain placer deposits, but upon which no placers have yet been opened, or, if once opened, are no longer worked.

Lands containing mineral veins or lodes are usually of such marked geological structure that litigation is not likely to grow out of adverse claims on the part of agricultural settlers. Besides, under local customs, vein miners are only allowed a certain number of feet on each side of the vein or lode. If beyond such allowance no other veins are found, and the land is adapted to farming, the rights of agricultural settlers must be recognized.

The registers and receivers are directed to afford all proper facilities to *bona fide* settlers for obtaining titles to agricultural lands; while on the other hand they are enjoined to take care to avoid interference with the mines or mining improvements of mining occupants.

Whenever the character of a tract applied for by an agricultural settler is contested, the register and receiver are directed to institute an examination, requiring the applicant to serve notice upon the contestants, which may be done by posting written notices at several prominent points in the vicinity of the land, or by publishing notice in the newspaper nearest the land in dispute.

The local land officers are directed to apply to this office for any further instructions desired, and to report promptly all contested cases, that they may be disposed of without unnecessary delay.

#### SURVEYING INSTRUCTIONS WITH REFERENCE TO MINING CLAIMS.

In regard to surveying mineral claims in Colorado the attention of the surveyor general at Denver was called, under date of the 24th June last, to the fact that in certain cases claims connected with the regular public surveys are connected by broken lines of different bearings; no direct line from the nearest public corner to the beginning point of the claim having been calculated and specified in the plat or field-notes, thus rendering it impracticable for this office, in the description introduced into mining patents, to locate each claim in the particular township, section, and subdivision, which will embrace it when the public surveys are completed.

The attention of the Colorado surveying department was also called to other cases, where the claims are connected with objects wanting in



permanency, such as trees, stones, and cabins, liable to disappear, and thus render it difficult, and in some cases probably impossible, to determine and identify the true corners.

The surveyor general was at the same time instructed to cause the draughtsman to examine the plats in the surveyor general's office, and endeavor to correct them so as to correspond with a sample plat then furnished for his guidance. That officer was further advised that the plats are copied into the patents, and that in certain cases it would be out of the question to do so without reducing the scale to such an extent that the claims would scarcely be visible; and he was informed it is unnecessary to represent upon the plat the line or lines from the public corner or initial point to the beginning point in the boundary of the claim, it being sufficient to indicate its bearing, and to state the distance without protracting it; that the prominent thing represented on the plat should be the lode or claim; that in connecting it with a public corner, the nearest to the claim should be selected, and the line should be a direct, straight one, its bearings and distance being carefully and accurately ascertained; that in the field-notes the deputy should report in what township, range, section, and subdivision, the claim will be located when the surveys are completed—a matter that may be easily ascertained where the surveys are so near that the claim may be connected with them.

It is required that township lines be extended over the mineral district whenever practicable; and when this is not so, the mining survey must be connected with permanent natural objects by course and distance, so as unmistakably to identify the beginning points of the respective surveys.

It is not doubted that such objects may be found in every mineral district; and this probability is rendered all the stronger from the fact that no difficulty appears to have been encountered in this respect in the general administration of the mining system. The plats received from other mining regions are full of references to mountain summits, prominent peaks, rocky points, buttes, and cañons, some of which are frequently selected as monumental points of whole districts; and by means of these permanent objects lode claims on unsurveyed lands are located with unerring precision.

#### FEES OF REGISTERS AND RECEIVERS IN MINING CASES.

The question having arisen as to the fees to which the registers and receivers are entitled for their services in acting upon mining cases, the Commissioner has decided as follows:

The fourth section of the act of March 21, 1864, "amendatory of the homestead law and for other purposes," provides that the register and receiver shall each be entitled to one dollar for their services in acting upon pre-emption claims, and shall be allowed jointly at the rate of fifteen cents per hundred words for the testimony which may be reduced to writing by them for claimants in establishing pre-emption or homestead rights. The sixth section authorizes an addition to the above fees of fifty per centum in the States of California, Oregon, and Nevada, and in the Territories of Washington, Colorado, Idaho, New Mexico, and Arizona.

Now, a mining claim being in fact a pre-emption, as the occupant under the mining customs is the only person privileged to purchase, and an application for a patent under the act of July 26, 1866, being analogous to a declaration of intention to enter under the general pre-

emption law, it is entirely proper to apply the provision as to fees in general pre-emption cases to the special pre-emptions under the mining act. Hence registers and receivers in the political divisions above mentioned, and in those formed from them, are entitled to charge applicants for mining patents, at the time of filing the diagram or making the application, three dollars, being one dollar and a half each to the register and receiver; and for taking the testimony, either in the form of affidavits or in writing out the answers of witnesses, they are allowed a joint charge of twenty-two and one-half cents per hundred words. In addition to this they are allowed one per cent. each on the amount of purchase-money, as in other cash sales of public lands. This last allowance, however, is not paid by the purchaser, but by the United States per Treasurer's warrant.

#### SIZE OF CLAIMS.

A question having been made as to the authority for issuing a patent to a company for three thousand one hundred feet on the lode, the statute designating, it was assumed, three thousand feet as the maximum to be taken in any one claim, the inquiry was answered by stating that the company in question held the possessory right to a number of claims, located agreeably to the local customs and rules of miners in that district, *prior* to the passage of the mining act, and that the act is not understood as intending to interfere with locations made before its enactment.

The quartz mining customs of the district in which the claim lies entitled each locator to one hundred feet on the vein, without limit as to the number of locators that might unite in a company. The claim referred to was located in 1863 by thirty-one locators, each taking one hundred feet.

The customs of the district permit each claimant to hold one claim by location, and as many more as he may purchase in good faith for a valuable consideration, the title of which he has recorded in the books of the county recorder within ten days after such location or purchase. Hence, while the mining customs of said district undertake to restrict monopoly in the matter of *locating* claims, no similar precaution appears to have been taken in preventing claims from accumulating in single hands by *purchase*, and this is generally true of other mining districts.

The second section of the mining act of July 26, 1866, provides that whenever any person, or association of persons, claim a vein or lode of quartz or other rock in place, bearing gold, silver, cinnabar, or copper, having previously occupied and improved the same according to the local customs or rules of miners in the district where the same is situated, and having expended in actual labor and improvements thereon an amount of not less than one thousand dollars, as aforesaid, it shall be lawful for said claimants to file in the local land office a diagram of said claim, and to enter the same and receive a patent therefor.

In the case referred to, the company claim to come within these provisions, and therefore to be entitled to receive a patent on complying with the other provisions of the statute. The provisos contained in the fourth section of the mining act are understood as relating to *locations* made since the 26th of July, 1866, and not understood as interfering with the right of *purchase* when the same are authorized by the local mining customs.

In the clause, "and not more than three thousand feet shall be taken in any one claim by any association of persons," in the last proviso of the

fourth section, the word "taken" is understood to be used in the sense of *located*; and that clause is construed to mean that not more than three thousand feet shall be located by any association of persons in any location made since the passage of the mining act.

The first proviso limits the quantity that may be located by an individual. The last clause of the second proviso makes a similar limitation as to the quantity that may be located by any association of persons.

#### UNITED STATES RAILWAY SYSTEM.

It is difficult, in this age of railroads and telegraphs, to realize the consequences incident to the isolation of different parts of civilized communities. The condition of English highways, and the ineffective police arrangements in past ages, which permitted gangs of freebooters to lay contributions, even upon the King himself, when traveling, exhibits a state of society which we can hardly imagine as existing within the last three centuries. Still more singular is the chronic opposition manifested during past ages to all efforts for removing these disabilities and for the improvement of the general relations of society; an opposition not from the poor and uninformed, but from the wealthy and enlightened. Even literature itself was arrayed against progress; two centuries ago a well-written pamphlet was published in England, entitled, "The Great Concern of England Explained," predicting the ruin of trade and countless other miseries from the introduction of stage coaches. Time and its wondrous results silenced the croakings of that day, but they have been renewed with the introduction of each successive improvement in travel, transport, and the transmission of intelligence. They become less obtrusive, however, as the spirit of progress pervades the entire framework of society, and are gradually lost amid its stirring activities.

The improvement of public highways by McAdam in 1815, and the extension of canals, had greatly increased the internal commerce and travel of England; but an era of commercial and industrial activity was approaching, the demands of which were to call forth an immense enlargement of the powers of locomotion. "I do not like the look of those tram-roads; there is mischief in them," said the Duke of Bridgewater. The old chronic dread of improvements assumed a specially belligerent phase among the landed aristocracy of England on the inauguration of railroad enterprise.

To this cause may be attributed the slow growth of its infancy; it was not until it was reinforced by locomotive steam-power that it gathered successful headway against powerful adversaries. Tram-roads, first of wood and then of iron, were extensively used toward the close of the last century. An iron tram-way had been built at Colebrook Dale as early as 1760, and so common had become this class of improvements that in 1811 there were in South Wales alone no less than one hundred and eighty miles completed. These, however, were but the adjuncts of mining or other enterprises, and were not for public use. The idea of a public tram-way, the inceptive thought of modern railroad, gradually worked out its own practical development. In 1801, the first act of Parliament giving authority for railway construction was passed by incorporating the "Surrey Iron Railway Company," from Wandsworth to Croyden, "for the advantage of conveying coals, corn, and all goods and merchandise to and from the metropolis and other places." The authorized capital of this company was £35,000, but it was empowered to borrow £15,000 more.

In this act of incorporation it was evident that the British legislators



but feebly realized the significance of their own work. The act was framed upon the usual methods of legislation in the case of canals. The company was merely to construct the road and permit other parties, at rates of toll varying from 2*d.* to 6*d.* a ton per mile, to furnish rolling-stock and to transport merchandise. The introduction of steam-power, and the consequent necessity of careful regulation of trains, soon rendered this method of working the road entirely impracticable, and the actual transportation of merchandise gradually became a monopoly of the company. It is a question of grave interest whether we should not recur to first principles and inaugurate railroads upon the system of public use, as in the case of canals and turnpikes. The practical difficulties in the way of this policy will soon perhaps be removed by the developments of science and experience.

In 1821 a railway was chartered from the collieries near Darlington to Stratford-on-Tees; and in 1823 the act of incorporation was amended to admit the use of steam power on the recommendation of George Stephenson, who had just completed his improved locomotive. This was the first road allowed to carry passengers. Hostile influences secured the insertion in this act of a restriction of the coal freight tariff to half a penny a ton per mile; but this provision, designed to defeat the enterprise, only developed an unexpected element of utility. It was soon found that low freight charges, by lessening the market price, enhanced the demand for coal and enlarged the amount of transportation to an extent which remunerated the reduced tariff.

In 1838 there were 490 miles of railway open in England and fifty in Scotland; their entire cost of construction, £13,300,000. In 1843 2,390 miles of railway had been authorized, of which 2,036 were open; total authorized capital, £82,848,041, of which £66,000,000 had been raised. The profits of some of the earlier roads had attracted an immense amount of capital to railroad investment and induced the establishment of competing lines, raising, in fact, a furor of speculation. During the three following years of railway excitement four hundred and forty-seven companies were incorporated, with authority to construct 8,043 miles, at a cost of £211,596,868. A destructive reaction succeeded, under the influence of which 1,560 miles of the above lines were abandoned, followed by a heavy decline in the annual rates of construction. Railroad enterprise in England, having passed its stage of speculation, has assumed a settled and systematic form; shorter lines have been consolidated with longer ones; permanent legal relations have been established between different lines; official responsibilities have been settled, and admirable arrangements perfected to secure the safety of life and property. The railway statistics of the United Kingdom for 1866 show 13,855 miles in operation, of which 9,701 were in England; authorized capital, £620,564,406, of which £386,806,321 had been paid up; passengers carried, 274,293,668, besides 110,227 season-ticket holders, animals carried, 15,948,797; goods traffic, 85,488,074 tons; gross receipts, £38,164,334, of which £19,342,681 were net profits.

The history of internal improvements in the United States reproduces several features of that of the mother country. Canals and turnpikes preceded railways, and the latter first appeared under the form of the humble tramway. In 1826 a horse railroad was commenced from the granite quarries of Quincy, Massachusetts, to the Neponset River, three miles distant. During the following year this road was completed, and another, nine miles long, was constructed from Mauch Chunk, Pennsylvania, to the Lehigh River. Local enterprises of this character, limited

to the transportation of mining products, multiplied, but the construction of more extendend lines awaited a heavier pressure of public necessities.

In 1824 the magnificent resources of the great Mississippi basin had attracted the attention of business men in the Atlantic States, as promising an immense volume of trade between the two sections. The most exalted anticipations of the growth of the great West then indulged in were exceedingly feeble compared with what has since been realized. They were sufficient, however, to excite a keen and powerful competition between the cities of the seaboard for the trade of that region. Boston, New York, and Philadelphia expected to pass the Alleghany Mountains in their northern and less elevated portions by means of canals, and thus tap the eastern watershed of the Mississippi basin. Baltimore, though nearer to the West than any of them, was compelled to resign this hope on the report of the engineer, General Bernard, who represented the natural and financial obstacles to canal construction across the mountains as practically insurmountable. To highly-wrought expectations succeeded despair, and many business men migrated to northern cities. Meanwhile, the idea of a railway was suggested by parties who had observed the operations of the infant railroad system of England. Intelligent business men became interested in the discussion, which finally evolved a practical movement. The ground was broken July 4, 1828, for the Baltimore and Ohio railroad, and the first passenger railway in the United States was placed under construction.

The Pennsylvania Central and the New York Central are consolidations of shorter lines constructed by local and independent efforts over portions of the space intervening between the Atlantic slope and the Mississippi basin, both having resulted from the same general rivalry for the control of western trade, which prompted the construction of the Baltimore and Ohio road. The special advantage which the New York Central gave to Boston by its connection with that city, in, drawing thither western produce for shipment, especially in the winter, when the Hudson River was frozen, induced New York capitalists to build a rival route, the New York and Erie line, from New York to Dunkirk, on Lake Erie. The construction of these lines of railroad and of the previous lines of canal across the Alleghanies has exercised a powerful influence upon the destinies of the nation. It is scarce to be doubted that without the intervention of these modern improvements, the East and the West would have grown up into comparatively independent communities. The rivers of the Atlantic slope, mostly estuaries, draining a limited portion of country, afforded no facilities for piercing the mountain barrier. The river system of the Mississippi, seventeen thousand miles in extent, radiated from the Gulf of Mexico, and promised cheap and ready-made channels for the teeming productions of the great central basin. New Orleans and Mobile were looming up as the seaports of a growing western empire, with a commercial sway extending to the great lakes on the north and to the Rocky Mountains on the west. The first line of separation, then, which threatened the unity of the republic was a north and south line dividing eastern and western sections, a line entirely obliterated by the constructions of those magnificent east and west lines of communication by which the Alleghanies were practically leveled and a homogeneous American society spread out from the Atlantic to the Mississippi.

Meanwhile the Southern Atlantic States were not indifferent to this transcendent interest. The South Carolina railroad was commenced in 1830, and in 1833 completed to Hamburg, one hundred and thirty-six miles. It was then the largest railway in the world, and was the first upon which



appeared an engine of American construction. It was also the first railroad upon which the mails were transported. Important connections have since been pushed westward to intercept the trade of the Mississippi Valley. Savannah has thrust iron arms into the heart of the western cotton regions, and established interior relations of the most advantageous character. Virginia and North Carolina also constructed important lines of railway connecting with the West and Southwest. Thus the two great primary sections of our country, the East and the West, had established along their entire line of demarcation commercial relations and common interests of incalculable value, settling permanently the question of their social and political union.

The wealth of the older States enabled them to supplement these main lines of communication with a network of local routes, covering the entire Atlantic slope, and thus brought all parts of the country into ready intercourse. The extension of local connecting lines, however, was sadly restricted by the want of capital in the younger States that had been organized on the western slope of the Alleghanies. But railroad enterprise was entering upon a new phase of development. It was no longer to await the necessary accumulation of capital by the slow processes of old-time industry. It was henceforth to create its own material of construction, and within the past twenty years has assumed the new function of leader in the van of progress.

In the middle of the nineteenth century the demand for railway extension in the West exceeded the amount of domestic or foreign capital that could be attracted to the investment. In this emergency our public land system was destined to crown its priceless benefits to civilization by presenting a practicable solution of the difficulty. It was a fortunate expedient, suggested by a western statesman, to endow incipient railroad enterprises passing through the public lands by granting the odd-numbered sections within moderate limits as a subsidy, the price of the even numbered sections being doubled, to prevent loss to the national treasury, the additional value conferred upon the lands by the construction of the railroads being justly regarded as an ample consideration for their increased cost, while a demand would be created for a large area of adjacent public lands, which otherwise might remain for years a drug in the market.

The first recipient of this government aid was the Illinois Central railroad. By act of September 20, 1850, the even-numbered sections on each side of the line of that road and its branches, within six miles, were granted to the State of Illinois to aid in its construction. The aggregate amount of land donated by this act was 2,595,053.60 acres, which, at the minimum price of \$1.25 per acre, represented a nominal value of \$3,243,750. This sum, though imposing at that day, will now be regarded as a very small draught upon the wonderful resources developed by the construction of the road.

This new policy of disposing of small portions of the public domain as subsidies for improvements in local communications, which should not only enhance the value of the residue, but also confer benefit upon the whole nation, rested upon a more liberal, and at the same time, a more judicious interpretation of the powers of the general government respecting the public domain. It was one of a series of facts indicating the opening of a new chapter in the progress of American civilization. It closely synchronized with the discovery and exploitation of the placer deposits of precious metals upon the Pacific coast, which imparted so great an impulse to the westward movement of our population, and became immediately productive of important results, by stimulating



railroad movements in the younger public-land States. The principle of government subsidy was destined to a speedy and enormous application in all those States in which there were projected lines of road of prime necessity to the forward movement of civilization, but crippled by want of capital. The claims set up in behalf of these enterprises to landed endowment were not rejected in view of the precedent established in the case of the Illinois Central.

Since the inauguration of this policy Congress has granted for railroad construction to fourteen States, viz, Illinois, Mississippi, Alabama, Florida, Louisiana, Arkansas, Missouri, Iowa, Michigan, Wisconsin, Minnesota, Kansas, California, and Oregon, by different statutes, 58,108,581.40 acres, of which, however, only 22,056,507.37 have been certified and patented. In addition to this aggregate, which covers an area more than double that of the State of Ohio, there have been granted to three States, viz, Michigan, Wisconsin, and Oregon, 3,782,213.27 acres, for the construction of wagon roads. In the fourteen States above enumerated there were, at the close of 1868, in full operation, 13,167 miles of railway, nearly all of which is due to the endowment by the general government.

A very large proportion, more than one-half, of the endowed roads in these States is as yet incomplete, as may be seen in the small proportion of the lands inuring under the grants which have as yet been certified and patented. The statistics of these States would be an interesting study, in order to estimate the immense volume of wealth and prosperity resulting from this wise and generous policy, but later and broader developments now challenge attention. Within the last five years railroad enterprise has assumed its grandest phase and performed its noblest achievements. In its infancy, on the Atlantic slope, it had drawn heavily upon the financial resources of the community for its construction account; but it had repaid every outlay a hundred-fold. In its second period of growth in the Mississippi Valley it improvised the necessary capital by drawing upon the undeveloped resources of the future. In its latest definite stage it has gathered strength to project itself across a thousand miles of almost untrodden wilderness in order to weld the outlying members of the American Union upon the Pacific coast to the parent mass of home civilization.

Twenty years ago the discovery of gold in California gave rise to an extensive immigration from every State in the Union, and from Europe. Erroneous impressions in regard to the agricultural character of that region at first gave to this immigration the character of mere temporary adventure. Men proposed for a short time to exile themselves from civilization, and undergo special hardships, in hopes of rapidly amassing wealth with which to return and assume at home higher positions in society. But the soil was found to be endowed with productive capacities which promised to surpass even the dazzling returns of mining enterprise. This fact, in connection with a wonderful geniality of climate and beauty of scenery, soon began to attract permanent settlement. Immigration brought more reliable elements of population. A vigorous organization of American society was speedily effected, and three Pacific States have been added to the Union, with a civilization of an advanced order, embracing a population of over a million souls. These communities were isolated by thousands of miles of wilderness. A broad *terra incognita* had been located by early geographers in the heart of our continent, and called by them the Great American Desert, intersected by formidable mountain chains, across which a few daring explorers, following the migrations of the deer and the buffalo, had traced devious,

toilsome, and perilous routes. The alternative to this overland travel consisted of the isthmus route, partly by sea and partly by land, over foreign territory, and of a still longer sea route around the continent of South America. The increase of the agricultural and mineral products of the Pacific slope, seeking eastern markets, demanded speedier, cheaper, and safer transportation. The swelling tide of immigration called for greater facilities of travel. The heart and brain of the American people have been perplexed with these problems from the commencement of our Pacific settlements, and various solutions have been proposed. So early as February 20, 1849, a committee of the House of Representatives of the United States reported upon a project for the construction of a railroad from Lake Michigan to the Pacific Ocean, as suggested by Mr. Asa Whitney, of New York. The earlier projects, resulting from very imperfect information, were necessarily crude and unsatisfactory. The pressure of the public interest involved, however, was too powerful to be postponed, and the general government was constrained to take initial action by a modest provision in the act of March 3, 1853, making appropriations to the support of the army, for the employment of the topographical engineer corps in making explorations for a railway from the Mississippi River to the Pacific Ocean. Under the authority of this and subsequent acts a series of explorations along different parallels was made, and the results published in 1855, by order of Congress.

These reports having been placed before the public, the best constructive and financial minds of the nation were soon deeply engaged in co-ordinating the facts presented into a scheme of practical operation. The war of the rebellion, instead of overawing the public mind by an imposing array of the financial and engineering difficulties of a trans-continental railway, stimulated the action both of the people and the government by showing the necessity of this enterprise to the territorial integrity of the republic. In spite of the enormous outlay for military operations, Congress responded to the demand of the people by passing several acts, from 1862 to the present time, endowing different railroad enterprises with splendid land donations, and loaning the public credit to three corporations for the immediate construction of a line of railroad and telegraph from San Francisco to Omaha and Kansas City, to the amount of \$50,000,000.

In the prosecution of railroad enterprise in its new aspect and on its enlarged scale Congress found it necessary, as mentioned in a previous report, to recognize a new principle in the interpretation of its constitutional powers. In the landed endowment of railway companies the States within whose limits the roads were to be constructed were made the trustees of the national bounty. In the Territories, however, there was no independent authority; the territorial governments, the creation of federal enactment, were of necessity ephemeral in their character, passing out of existence on the erection of their Territory into States of the Union. In large portions of the public domain there were not even territorial governments, and civilized society did not exist in any force. In this case it was necessary to create, by direct legislation, the corporate agencies essential to execute the splendid schemes of trans-continental communication, upon which world-wide interests were depending. By act of July 1, 1862, Congress gave the initial organization to this movement, providing for the construction of a main line of railway and telegraph from Omaha, Nebraska, to San Francisco, California, with a branch diverging southward at the one hundredth meridian, and terminating at the mouth of the Kansas River. Confiding to the Central Pacific Railroad Company, a corporation under the laws of California, the construction



of the western portion of this line, and to the Leavenworth, Pawnee and Western Railway Company, incorporated under the laws of Kansas, the construction of the southern branch, it incorporated the Union Pacific Railway Company, with a capital of \$10,000,000, for the construction of the eastern portion of the main line. To each of these companies the odd-numbered sections of public lands for ten miles on each side of their respective lines were granted as subsidies to aid in their construction. In addition to this landed endowment, government loaned its credit to the amount of \$16,000 per mile, on the completion of each section of forty consecutive miles, in bonds of \$1,000 each, whose delivery was to constitute *ipso facto* a first mortgage on the road and its appurtenances for the repayment of the loan. For the portions of the road extending one hundred and fifty miles westwardly from the eastern base of the Rocky Mountains, and the same distance eastwardly from the western base of the Sierra Nevadas, the amount of government bonds loaned per mile was trebled, and for the intervening sections it was doubled.

By act of July 2, 1864, the land grant was doubled, embracing the odd-numbered sections within twenty miles of the line on both sides, and each company was permitted to issue bonds equal to the amount per mile loaned by the government, the lien of the latter being subordinate to that of the former. The amount of landed subsidy accruing under the grants to the Central Pacific, Union Pacific, and Kansas Pacific companies, for the construction of the main line and the southern branch, will not be less than 35,000,000 acres, of which only 164,801.48 have, as yet, been certified and patented. The total amount of government bonds issued to these companies is \$51,009,000, being \$26,638,000 to the Union Pacific and \$24,371,000 to the Central Pacific.

These imperial subsidies find no parallel in history; they are significant indications of the enormous financial power of a high civilization organized upon the normal basis of an intelligent democracy. The land grants are equal to the united areas of New York and New Jersey, while the government credit loan surpasses the most splendid examples on record of royal or imperial munificence. That such a donation should be made, and such enormous financial obligations assumed, by a young nation in the darkest hour of its struggle for existence, and the permanent establishment of the great principles on which it is founded, exhibited a matchless reliance upon its own resources, and an invincible determination to achieve the grandest results of civilization which have been so amply illustrated.

The magnitude of the task of constructing the initial line of trans-continental railway, it is now ascertained, was largely overrated, and immense profits have consequently accrued to the fortunate capitalists whose faith was proof against the imposing front of untried difficulties that then beset the enterprise. But this is one of the necessary incidents of grand undertakings. The benefits accruing to the nation and to humanity would warrant the expenditure of ten times the cost already incurred. There are features in the plan of landed endowment of these and other railroads which the increasing light of experience has shown to be objectionable. The conveyance by patent to the railway companies of such immense bodies of real estate affords a nucleus for the formation of formidable landed monopolies. It is suggested that hereafter such untoward results would be avoided by retaining the lands donated to railroads in the hands of the government, and appropriating the proceeds of their sale, as fast as disposed of, to companies building the same, and then to restrict such grants to works of great public necessity.



The operations of the Union Pacific, Central Pacific, and Kansas Pacific companies, in the construction of their respective lines, exhibit a combination of skill and energy that is one of the marvels of the age. The Union Pacific company commenced building from Omaha, its eastern terminus, in 1865, finishing fifty miles during that year. In the construction of the lighter portions of the route a facility and rapidity of movement were acquired which would transcend all power of belief, were not our ideas so expanded by the wonders multiplying around us. As the work advanced from its base of supplies into the interior wilderness, notwithstanding the increasing difficulty and expense of transportation, the rate of construction seemed to be accelerated. The materials for superstructure of each mile of the road, weighing not less than three hundred tons, were necessarily transported along the entire line from Omaha, besides the supplies necessary for the subsistence of the grand army of workmen and draught animals. Passing the Laramie Plains and crossing the first range of the Rocky Mountains, the operations of construction were carried on in the dreary alkali desert, through which water as well as other supplies must be transported. Supplies, as heretofore stated, were gathered a thousand miles eastward, accumulated in enormous magazines at eligible points of distribution, and transported to their respective localities, without interfering in the least with the regularity of the work. In spite of these difficulties the rate of construction rose to six or eight miles per day. The same admirable capacity for organization was manifested, with no less remarkable results, in the construction of the road through the mountain regions. The most striking achievement, however, in the difficult portions of the enterprise, was by the Central Pacific company on the west end of the line. The passage of the Sierra Nevada is regarded by professional authorities as a masterpiece of engineering and executive energy and skill. To cross the maximum summit, seven thousand and forty-two feet above sea-level, within one hundred miles of the tidal waters of the Pacific, required a scientific distribution of the ascent in order to render it practicable to ordinary locomotives, and an expensive construction, which are but imperfectly realized even by intelligent and careful readers. The Union Pacific railroad, in crossing the Rocky Mountain chain attained a higher altitude, but its grades were much lighter, being spread over a greater range of country. The Central Pacific, however, secured a remarkably direct alignment, using a minimum radius of five hundred and seventy-three feet. Its maximum grades are one hundred and sixteen feet per mile, to which, by act of Congress, all the Pacific roads are restricted. While the summit was being perforated with a tunnel seventeen hundred feet long, the iron rails were dragged over for the simultaneous construction of the sections beyond. A unique feature in the construction of this route is a range of shed of heavy timber, forty miles long, for protection against the snow. In the more level country east of the Sierras the Central company was enabled to emulate the rapidity of movement of the Union Pacific, and a junction was effected May, 10, 1869, at Promontory Point, near the head of Salt Lake.

Thus was completed the initial line of trans-continental railway communication. When the enormous extent of the work is considered, and especially the towering obstacles in the more difficult portions of the line, we may well be astonished at the result, illustrating the American name with a glory un eclipsed by any former achievement in our brief but eventful history.

What has thus been accomplished is only the starting-point of a still nobler career. It is but the preliminary demonstration of the wonderful

capacities of railway enterprise for the amelioration of society and the subjection of the earth's resources to the wants of civilized man.

The equipment of these roads is of the first character, and constructed by the best mechanical skill which science can afford. They have established workshops for the construction of their own rolling-stock—a system which the experience of railroads in this country has fully vindicated. They now constitute a great steam highway, traversing the region now occupied by ten States and Territories. Of these, California has a population of 600,000; Nevada, 60,000; Oregon, 100,000; Idaho, 50,000; Montana, 50,000; Utah, 150,000; Colorado, 80,000; Wyoming, 20,000; Dakota, 20,000; and Nebraska, 150,000, making a total of over 1,200,000. The completion of this route has enormously stimulated the annual increase of these populations by immigration. We may reasonably expect that the beneficent provisions of our pre-emption and homestead laws will soon be laid under contribution by millions of settlers. A scientific agriculture and a more skillful mining industry will soon swell the volume of raw production throughout these roads, and demand an immense increase in transportation. In process of time there is reason to hope that social science will crown her practical benefits by devising means for reclamation of even the alkali regions of the Rocky Mountain plateau. Within the limit of the so-called American Desert will yet grow immense forests from seed planted by the hand of man, covering bleak ridges and plains, arresting excessive evaporation, ameliorating climates. A judicious irrigation will redeem millions of acres from sterility, and add magnificent tracts to the productive area of the nation. The generous fruits and the heavier cereals will supply vegetable food in enlarged quantities; while the immense herd of domestic animals, grazing upon the inarable tracts of hill and mountain, will increase the volume of animal products for the sustenance of the people. The enhanced yield of the precious metals will enlarge the basis of exchanges, while the exploitation of useful minerals, by enhancing raw production, will give rise to a mechanical industry of splendid proportions.

The domestic commerce resulting from the exchange of these raw and manufactured products, will be of transcendent value. The immense proportions of the foreign trade of a nation are indicative of general prosperity only when these bear but a small ratio to the domestic trade. It is with great satisfaction, therefore, that we recognize an immense preponderance in our home commerce. It is believed that these domestic activities will far overtax the present or prospective capacities of the single line of trans-continental railway already completed. When, in addition to this, the Pacific roads are called upon to meet the demands of the vast foreign traffic, whose swelling tide has already been felt, the necessity of enlarging the facilities of travel and transport will become imperious. Wagon freights to the Pacific last year were estimated by reliable authority at 230,000 tons per annum, costing \$13,000,000. Prior to that year at least 154,000 persons annually passed from ocean to ocean, paying for their transportation \$31,000,000. The completion of the Pacific roads has doubtless, swelled these annual aggregates to 500,000 persons and \$100,000,000. Oriental commerce, so long monopolized by European nations, will, ere long, pay its tribute to the American flag. The expensive caravan routes of Eastern Asia will soon be supplanted by modern railways, built by American enterprise and capital, bringing the teeming products of its mighty industrial system within the sphere of attraction of our network of public highways. The Yang-tse-Kiang, the Mississippi of China, now vexed by the paddle-wheel of the steamer,



is discharging the massive production of the great interior right opposite to San Francisco. The initial enterprise of Pacific Ocean navigation is in American hands; the Pacific mail steamers have already deflected to San Francisco an immense tide of travel and transport from Shanghai and Yokohama that would otherwise have reached Europe and America by way of the Suez Canal. The annual tonnage of San Francisco, which had increased from 765,900 in 1866 to 901,401 in 1867, cannot now be less than 1,250,000. The number of passengers arriving there in 1867 was 38,800, an aggregate which, nearly doubled in 1868, cannot fall far short of 100,000 in 1869.

The mass of Oriental commerce and travel passing across our continent must soon be greatly increased. The improvements in railway transport and in navigation will quicken the passage on both elements. The opinion is gaining ground that the time occupied in a transit from Yokohama to London across our continent will soon be reduced to three weeks—the time now required for the trip across the Pacific. The volume of transportation that we will thus be enabled to attract will transcend the capacities of any one route. We must then look to the multiplication of our trunk lines and the extension of minor cross lines. The Kansas Pacific Company, until lately known as the Union Pacific, Eastern Division, has completed its route westward from the mouth of the Kansas River to the one hundredth meridian, as authorized by the act of July 1, 1862. By act of July 3, 1866, this company was required to connect with the Union Pacific road at a point not more than fifty miles west of the meridian of Denver, Colorado. By act of March 3, 1868, it was further allowed to contract with the Denver Pacific Railway and Telegraph Company, incorporated by the territorial legislature of Colorado, for the construction, maintenance, and operation of that part of the line between Denver and Cheyenne, the point fixed by this statute for the junction of the Union Pacific and Kansas Pacific lines. In this statute, however, is reiterated the requirement that the Union Pacific and all its branches shall be worked as a continuous line, a provision of inestimable public benefit.

The Kansas Pacific, by act of July 1, 1862, was entitled to a loan of government bonds to the extent of \$16,000 per mile, on the line from the eastern terminus to the one hundredth meridian. The entire loan, computed on the shortest of the alternative lines of survey presented by the company,  $393\frac{1}{2}$  miles, amounts to \$6,303,000; the length of the line actually built, however, is 405 miles. At the date of their last annual report 440.25 miles were completed, and the directors promise vigorous efforts for constructing the entire line, hoping to reach Denver by June 1, 1870. The traffic of this route is of the most encouraging character. The quelling of Indian disturbances has given rise to a great increase of through travel, the aggregate of passengers for 1868 being 109,332, showing an excess of west-bound passengers of 10,094. Each passenger averaged 61 miles. The total amount of freight transported was 124,377 tons, showing an increase in the regular mercantile traffic over that of the previous year. The gross earnings amounted to \$1,910,161 83, of which \$873,667 63 were clear profit.

The foregoing routes constitute the initial system of railway communication across the central portion of the public domain. The enterprise in its inception was, in many respects, purely experimental. The lessons of experience which it has taught outweigh in value the immense cost. A commencement has been successfully made in the work of internal improvement, and the public mind is rapidly advancing to still more momentous undertakings. Among the points established in the



experience of the past five years is the insufficiency of a single line of railway communication from the Mississippi to the Pacific. It is the opinion of men whose position gives them ample opportunities of making up an intelligent judgment, that the local traffic created by the completion of the Pacific roads will, alone, constitute a splendid business, while the through traffic of American freight will absorb the residue of their capacity for transportation. When the trade from Asia is added by the existing steamship line, and by steam and sailing vessels, which will soon be put upon the Pacific Ocean routes, the inability of a single line to meet the demands will lessen confidence in the route, and drive freight and travel from Eastern Asia westward through the Suez Canal. If the Pennsylvania Central, in the presence of four powerful rivals, the New York and Erie Canal, the New York Central, New York and Erie, and the Baltimore and Ohio railroads, has been compelled not only to double, but to triple, its track, to accommodate only a portion of the business of the Ohio Valley, will not the expanding trade across the continent require an increase of facilities for travel beyond any single line?

There is another aspect of the case, strongly re-enforcing the absolute necessity of several through trunk lines. Any single line will necessarily become a monopoly. It is true, Congress, in the act of July 1, 1862, reserved to itself the right to intervene, for the purpose of correcting this evil, by lowering the tariff of charges, should they become excessive; but it is not so easy for the legislative department to interfere without affecting other interests. The end in view can be secured without the compromise of any vested rights, and in a far more desirable manner, by the establishment of competitive lines. Furthermore, it must be remembered that the Union Pacific is a compromise line; that its central position was secured at the sacrifice of several prominent advantages presented by other routes that have been surveyed—advantages which, in the increased activity of commerce and travel, cannot long be ignored.

Prominent among the disadvantages of the central railway route is the great altitude at which it was found necessary to pass the Rocky Mountains and the Sierra Nevada. The maximum altitude of the Central Pacific is 7,042 feet above sea level, a grade to be overcome within one hundred miles of the sea-coast. The Union Pacific attains an altitude of 8,262 feet above sea level at Sherman's or Evans's Pass. These high elevations, during the winter, involve serious obstruction from snow. To obviate this difficulty the Central Pacific Company, as before stated, have covered some forty miles of its most exposed route with sheds of heavy timber, involving an enormous expense.

The Northern Pacific presents as one of its strong claims to public attention its comparatively low summit levels. It proposes to cross the Cascade Mountains in Washington Territory by the Snoqualmie Pass, 3,000 feet above sea level, and the highest range of the Rocky Mountains by Cadotte's Pass, whose elevation of 6,167 feet may be reduced to 5,337 feet by a tunnel two and one-eighth miles long. Blodget's charts show that the respective points where the Northern Pacific and the Union Pacific pass the main range of the Rocky Mountains are on nearly the same winter isothermal parallel of 20° Fahrenheit, with about the same winter temperature on the adjacent plains and foot hills, and with a summit level at Cadotte's Pass 3,000 feet lower than that at Evans's Pass.

The Northern Pacific offers a pretty safe guarantee against these formidable obstructions from snow which the more southern route has

already experienced. The Northern Pacific route claims to be the shortest and most central from the tributary waters of the Atlantic and Pacific Oceans. Its main line from Lake Superior to Puget's Sound is seventeen hundred and seventy-five miles in length, being seventy miles shorter than the Union Pacific, and reaching two hundred miles further eastward.

From its western terminus to Japan, China, and Russian Asia, the ocean navigation is nearly five hundred miles less than from San Francisco. Seattle is also seven hundred miles nearer to our newly acquired Russian territory. This route further claims to pass through a very small proportion of country deemed uninhabitable. In its construction it will not require the transportation of materials such immense distances as was necessitated by the plains and mountain regions of the Union Pacific line. Its materials of construction are found in abundance along its route; it is even proposed to supply iron rails by opening its splendid deposits of coal and iron ore. The estimated cost of construction and equipment of the main line is \$140,377,500, to which add for the construction and equipment of the Oregon branch \$16,480,000, making the grand total \$156,857,500.

The eastern connections which would naturally be made by this line are very important. A convention of trading, transportation, and other public interests was called at Oswego for the 6th day of October, 1869, in behalf of a continuous line of trans-continental railway through Chicago, Portland, and St. John's, by which it is hoped to secure a transit from London to San Francisco inside of two weeks. The shorter Pacific navigation connected with the Northern Pacific route, in addition to its own shorter line, will have powerful influence in attracting these eastern connections, deflecting, perhaps, the main line of Asiatic travel to Seattle from San Francisco.

The Northern Pacific was incorporated by act of Congress approved July 2, 1864. Its subvention from the general government consists of a grant of lands, including twenty odd-numbered sections on each side of the line, or 25,600 acres per mile. No loan of government bonds has been promised for its construction. But the day of such extraordinary endowments is passed. Pacific railroad enterprise, however, is entering upon a self-sustaining stage, and it is believed that it will be able to stand upon its own basis, and that doubtless the Northern Pacific road will have become, within the next ten years, an accomplished fact. Should the government decline further loans for railway construction, an outlet will be closed for surplus capital which will be compelled to seek other investments.

The undeveloped resources of this company are attracting the attention of capitalists. Its landed subsidy is double that of the Union Pacific road. Comparatively a very small proportion of its line runs through an elevated region. Governor Stevens was of the opinion that not more than one-fifth of the land from Red River to Puget's Sound is inarable, and that this is largely made up of mountains covered with valuable timber. It is evident that an immense agricultural area is here awaiting development. The great wheat-growing regions, on the left bank of the Upper Missouri, promise speedy settlement upon the opening of an avenue for the transportation of their products to market. Each section of the road as it is completed will, from local traffic alone, find ample returns for its investment.

The construction of the eastern section of this road from Lake Superior to the Red River of the North will be temporarily superseded by the completion of the St. Paul and Pacific railroad, incorporated by the



State of Minnesota, and under rapid construction. This road was endowed, by act of March 3, 1857, with twelve sections of land per mile. Its present objective point is Breckinridge, on Red River, two hundred and fourteen miles from St. Paul. The bonds of this company are held in Holland, the road having been built mainly with Dutch capital. Its average cost of construction hitherto has been about \$30,000 per mile. It is expected the whole line will be in operation before the close of the current building season. It has already proved its importance by attracting a large Scandinavian immigration to the region through which it passes. It taps the important and unique overland trade of the Red River country, now carried on by half breeds, in immense caravans of ox and dog carts, sometimes numbering fifteen hundred in a single train. At St. Paul this route will connect with the net-work of railroad lines permeating the Mississippi basin and the Atlantic slope, and will constitute an important link in the great northern trans-continental route.

A southern through line of railway from the Mississippi basin to the Pacific seems to be settled upon in the public mind as one of the requirements of American civilization within the next ten years, and there are a number of rival claimants aspiring to meet this public necessity. The Kansas Pacific, having obtained authority of law for transferring the construction, maintenance, and operation of that portion of their line yet uncompleted, from Sheridan to Denver, now proposes to extend its line to the Pacific by one of two alternative routes along the thirty-fifth and thirty-second parallels respectively. Both of the routes claim especial advantages. The southern latitude is ample security against the winter obstructions of the northern routes. At all times of the year the entire line will be in practical operation. The great body of the central barrens of the American continent will be flanked, and these routes will develop a country of unsurpassed agricultural and mineral resources. The finished portion of the Kansas Pacific road has demonstrated its capacity for developing and populating a hitherto savage region. The climate and productive characteristics of the country traversed by the unfinished portions of the line are not less promising than along the finished sections. The agency of this line in developing those wonderful portions of our public domain we are but imperfectly able to estimate; the results of the construction of the Union Pacific line, however, give some very significant indications.

The Atlantic and Pacific Company proposes to occupy, by a line of railway and telegraph, the zone bordering the thirty-fifth parallel. This company was incorporated by act of Congress approved July 27, 1866, to construct a route from the western boundaries of Missouri and Arkansas, by way of Albuquerque, Agua Frio Pass, and the headwaters of the Colorado Chiquito, to the Pacific. This road was endowed with a landed subsidy of forty odd-numbered sections per mile in the Territories and twenty sections per mile within the States. About two hundred miles of the line lies within the State of Texas, from which the company holds a grant of lands in aid of its construction. The eastern portion of the line, about one hundred miles from Springfield, Missouri, westward, has been placed under construction. To provide for expenses thus incurred the company has issued its first mortgage bonds, bearing six per cent. interest and payable in gold, to the amount of \$3,000,000. A consolidation has been effected with the Southwest Pacific Company of Missouri, which will make St. Louis the eastern terminus of the road.

The Memphis, El Paso, and Pacific Company, incorporated under the laws of Texas and endowed with the odd-numbered sections of public



land belonging to that State lying within eight miles of its line, proposes a westward extension to San Diego, on the Pacific, through the southern parts of New Mexico, Arizona, and California, crossing the Colorado at its confluence with the Gila. This company owns the franchise of the San Diego, Gila, and Southern Pacific Company of California, which it proposes to constitute the western section. About sixty-five miles of the eastern portion of the line are nearly finished, and the California section will soon be put under construction. Strong efforts are now being made to enlist European capital in this enterprise. The only franchise asked of the general government is the right of way through the public lands on its route. It thus appears that responsible parties, aided by landed subsidies, have undertaken the construction of railway and telegraph along the thirty-second and thirty-fifth parallels. The foregoing is a brief synopsis of the system of Pacific through lines, establishing a close and intimate connection between the different parts of our national territory, and thus securing to American civilization an essential unity of development. Cross lines from north to south, intersecting these great longitudinal thoroughfares, have already been provided, and will doubtless increase in numbers and extent as the wants of the country may demand.

The Union Pacific has constructed a branch from Frémont, Nebraska, to Sioux City, Iowa, as provided in the act of July 1, 1862, for which it receives the same landed and loan subsidy that was awarded to its main line. The amount of the government loan is \$1,628,320.

By the act of July 13, 1866, twenty odd sections, or twelve thousand eight hundred acres, per mile were granted to the Placerville and Sacramento Valley railroad of California. At the close of 1868 it had constructed twenty-six miles, from Folsom to Shingle Spring. By the act of July 25, 1866, the same landed subsidy was granted to the California and Oregon railroad to aid in constructing a railroad and a telegraph between the north line of the State and a point on the Central Pacific, to be selected by the company. The point since determined upon is Roseville, eighteen miles from Sacramento. By the same act a similar grant was made to a company to be incorporated by the Oregon legislature, for the continuation of this railroad to Portland, Oregon. Although no information of any definite operations under those acts has been received, yet the increasing demand for local connections on the Pacific coast, and the well-known intelligence and energy of the railroad men of that section, are ample security against any failure of the enterprise.

From the Kansas Pacific road have been projected several very important cross lines and branches. By act of July 1, 1862, the Hannibal and St. Joseph railroad of Missouri was authorized, with the consent of the legislature of Kansas, to extend its line, westward *via* Atchison, to intersect the Kansas Pacific, receiving the same landed and loan subsidies that were awarded to the latter to the extent of one hundred miles. This length of route has been completed to Waterville, Kansas, and the company has solicited the extension of government aid to finish its line to a junction with the main one some two hundred and fifty miles to the westward. Government loan bonds to the amount of \$1,600,000 have been issued to this company.

From Junction City, on the Kansas Pacific road, the southern branch of the Union Pacific is constructing a line of railway and telegraph down the Neosho Valley to Fort Smith, in Arkansas, whence it will make close and important connections with the Gulf of Mexico and with the entire railroad system of the southern States. By the first of January next one hundred and six miles will be open for business. In

its northern projection it will ascend the valley of the Republican Fork of the Kansas River, cross the Union Pacific road at Fort Kearney, and form a junction with the Northern Pacific at the headwaters of the Yellowstone River. This road, one of the most important of the north and south lines of the United States, has a landed endowment of twenty sections, or twelve thousand eight hundred acres, per mile. Strong efforts are being made to enlist French capitalists in the construction of this road.

The Leavenworth, Lawrence, and Galveston railroad was, by act of March 3, 1863, endowed with a landed subsidy of twenty sections, or twelve thousand eight hundred acres, per mile. It passes the Osage River near Ohio City, and runs southward to meet the Houston and Texas Central at Preston, or some other point on Red River. Two divisions, embracing about sixty miles from Lawrence, it is understood will be completed during the current year. The cars are now running about half that distance, to Ottawa. By act of July 25, 1866, a similar land grant was made to the State of Kansas, in behalf of the Kansas and Neosho Valley railroad, for the construction of a railroad and telegraph from the eastern terminus of the Kansas Pacific, southward through the eastern tier of counties in Kansas, to connect with a road under construction from Galveston, Texas, to Preston on Red River. No information has been received of any operations of construction under this grant.

By act of March 3, 1863, a similar concession was made to the State of Kansas in behalf of the Atchison, Topeka, and Santa Fé railroad. By act of July 23, 1866, the same aid was extended to the St. Joseph and Denver City Company to construct a road from Elwood, Kansas, opposite St. Joseph, Missouri, to a point on the Kansas Pacific not further west than the one hundredth meridian. Both the last mentioned grants are to revert to the government if no part of the road shall have been constructed within ten years from the passage of the act. No advice has reached here of any construction operations under either of these grants. The Atlantic and Pacific railroad proposes to construct important branches to their main line from the point of its crossing the California State boundary to San Diego, and a point near the one hundredth meridian eastward to Fort Smith. A branch of this road is also contemplated from Albuquerque through Sonora to Guayamas, on the Gulf of California. The Memphis, El Paso, and Pacific railroad also proposes a branch line to Guayamas.

The foregoing facts indicate a rapid crystallization of the trans-Mississippi railway system. They mark the lines of development of our western civilization, for these enterprises are not the offspring of mere headlong speculation; they are the solid natural outgrowth of a healthy progress. In their preliminary surveys they have already shed a flood of light upon the industrial and commercial capacities of that *terra incognita*, the great interior of America, whose inhospitable deserts have shrunk before the advance of geographical discoveries, until it is doubtful whether there is any portion of our continent which will not finally, by perfected cultivation, be made capable of supporting a civilized population. The wealth of mineral and agricultural productions yet to be brought forth under improved processes of mining and culture, and under the genial influences of irrigation and of forest planting, will constitute the wonder of coming generations; to-day the public mind is too bewildered by the realities transpiring around us to calmly estimate the results of the future.

The railways of our trans-Mississippi regions already projected embrace an aggregate length of not less than 15,000 miles. Of these, not less



than 3,500 miles will be in operation by the close of the present calendar year. According to Poor's Manual, the mileage of all the railroads of the United States, complete and in actual operation at the close of 1868, was 42,255. At the close of this year the aggregate will be nearly 48,000 miles. The finished railroads of the world, according to Poor's estimate, embraced, at the close of 1868, an aggregate mileage of 109,177, costing \$10,829,751,982, or an average of \$99,194 per mile. Of the 45,655 assigned to North America, costing \$2,045,364,856, or \$45,655 per mile, the United States claims 42,255 miles, constructed at a cost of \$1,869,529,913, or \$44,255 per mile. In the whole world the length of completed railroad lines averages one mile to every 178 square miles of land surface and to every 5,353 inhabitants; in North America the average is one mile of railway to ninety-three square miles, and one thousand inhabitants; in the United States the average is one mile of railroad to seventy-one square miles and 876 inhabitants.

The continent of Europe reports 55,660 miles of railway, built at a cost of \$7,528,734,923, or \$132,876 per mile, being an average of one mile to sixty-four square miles of territory and 5,016 inhabitants. Great Britain and Ireland have 14,247 miles, costing \$2,511,314,435, or \$176,269 per mile, averaging one mile of road to 8.60 square miles of territory and 2,056 inhabitants. We have already, in the United States, reached the average of Europe as to territory; the average of the United Kingdom would give us nearly 400,000 miles of railway, or eight times our present aggregate. If our population should preserve its present ratio to railway mileage, we would then have 350,000,000 of people, or nearly the population of China. It is remarkable, however, that this ratio with us has been rapidly diminishing; in 1840 it was 6,057 to 1; in 1850, as 2,542 to 1; in 1860, as 1,026 to 1; in 1868, as 876 to 1. We thus see that, as wonderful as has been the increase of our population, our increase of facilities for transportation has been much more rapid. In the nature of things, however, this ratio must soon reach a minimum. Our population has shown a uniform increase of about thirty-five per cent. in each decade since 1790; and as there are indications rather of enhancement than of decline in this rate, it is almost a moral certainty that in 1900 we will have 107,000,000 of inhabitants. Darby estimates 115,000,000. Supposing that by that time the ratio of population to railway mileage shall have reached a minimum of 500 to 1, our aggregate length of lines will be 200,000 miles.

The average annual increase of railway lines in the United States from 1835 to 1868 was 11.07 per cent. This rate has been fluctuating, rising in 1838 to 26.93, and declining in 1861, the first year of our late civil war, to 2.03 per cent. During 1868 it was 7½ per cent., and during the ensuing year it will not be less than 12 or 13 per cent. If the average annual increase subsides to five per cent., we will have in 1900, as noticed above, two hundred thousand miles of railroad, four times our present aggregate, and double the present aggregate of the entire world.

The tide of commercial movement that will soon course along these artificial channels presents some brilliant problems for progressive statisticians. A few facts will serve to show the amazing extent and the extreme difficulty of treating the data presented. The artificial highways in the State of New York in 1867 consisted of 1,027 miles of canal and 3,245 miles of railroad, total 4,272. The former carried during the year 5,688,325 tons of freight, of an aggregate value of \$278,956,712, averaging \$49 21 per ton; the latter carried 10,343,681 tons, valued at \$1,444,373,495, averaging \$139 63 per ton; the total traffic by rail and canal was 16,032,006 tons, worth \$1,723,330,207, or \$107 43 per ton. The



canals carried 5,539 tons, worth \$272,573 per mile; the railroads carried 3,187 tons per mile, representing a value of \$445,000; both united carried 3,753 tons and an average of \$403,399 per mile.

The railroads of Pennsylvania, having less competition from canals for gross freight, exceeded even the New York canals, transporting 35,383,370 tons, averaging 7,864 tons per mile. The railroads of Massachusetts, 1,425 miles long, transported 5,394,137 tons, or 3,785 tons per mile. The railroads of Ohio, with a length of 3,398 miles, transported 10,813,535 tons, or 3,182 tons per mile.

It is estimated that the railroads of the United States transported, during the year 1868, 100,000,000 tons, or over 2,000 tons per mile. In 1851 the entire railroad traffic of the country did not exceed 5,500,000 tons, or 503 per mile, the mileage reported for that year being 10,982; while the actual length of railway lines has increased in eighteen years nearly five fold, the tonnage per mile has quadrupled; that is, in 1868, with less than double the population of 1851, we require twenty times the amount of railway transportation.

The value of the freight transported in 1868 may be estimated from the returns of the New York railroads, collected with admirable precision under the provisions of State law. The canals to a great extent absorb the cheaper raw material, and consequently the railroad freights represent a higher value per ton (\$139 63) than would be safe to assign as the average of the whole country. Assuming, however, the average value of railroad freight all over the Union at \$120 per ton, and we obtain the startling aggregate of \$12,000,000,000 as the representative value of our railway traffic in 1868, about two-fifths of our entire personal and real estate at gold valuation, and nearly five times the amount of our national debt.

The agency of this enormous system of internal communication in creating value is illustrated by some very decisive facts cited in Poor's Manual. Prior to the opening of the Erie canal the transportation of a ton of corn from Buffalo to New York cost \$100, or four times the value of the freight, twice the value of the same quantity of wheat, and the full value of an equal quantity of beef or pork. The opening of the canal at once reduced the price of transportation to ten dollars per ton, and a further reduction was soon made to three dollars per ton. By this wondrous absorption of friction in the movement of commodities to market, a latent value of ninety-seven dollars per ton on all such merchandise was immediately developed, to be shared between the producer at one end of the line obtaining higher prices, and the consumer at the other end paying lower prices.

But canals were not practicable for highways of transportation across the more southern portions of the Alleghany Mountains, and railroads became a necessity. Though the expense of transport upon the latter has not yet, by any exertion of economic intelligence, been reduced to that of the former, an immense improvement was effected in the transportation even of the heavier staples of raw production, and untold values rescued from the destructive friction of transportation. The cost of transporting corn and wheat over ordinary highways was not less than twenty cents a ton per mile. At such rates corn will bear transportation only one hundred and twenty-five miles, and wheat two hundred and fifty, supposing the market value of the former to be seventy-five cents, and of the latter one dollar and a half per bushel. The cost of transportation by rail is one and a quarter cent per ton per mile, thus rescuing eighteen and three-quarter cents per ton per mile from the expense of transportation, and dividing it between the producer and the consumer. Corn

may thus be made to bear a transport of sixteen hundred miles, and wheat of thirty-two hundred. In the aforesaid development of additional values, it is to be observed that only that portion which is seen in the increase of price obtained by the producer is appreciable in dollars and cents; that immense value to community realized in the lessening of market price of raw and manufactured products is beyond all conjecture.

It is difficult to estimate the exact number of passengers carried on our roads. An average of twenty-five hundred a mile per annum, less than the average of the Ohio roads, and about one-half the average of New York roads, in 1867, would give an aggregate of over one hundred millions during the year 1868. The gross earnings of all our roads for 1867 amounted to about four hundred millions of dollars, of which one hundred and twenty millions were from passengers, and two hundred and eighty millions from freight. The rapid increase of the latter is an encouraging indication, being in the ratio to passenger traffic as seven to three; on the English roads they are nearly equal.

English roads, from their elaborate construction, have considerable advantage over our roads in the expense of operation and maintenance. Their net profits amount to fifty per cent. on the gross receipts, whereas ours scarcely reach thirty per cent.; yet the dividends to stockholders in this country are more than three times as large as those of English roads. Our oldest lines, however, are by successive improvements approaching the highest standard of excellence in construction. The average cost of construction per mile of our roads is \$44,255, whereas that of the English roads is \$176,269, being the most costly roads in the world.

In the light of the foregoing facts we may expect in another decade that our railroad mileage will be seventy-five thousand, transporting two hundred and fifty million tons per annum, representing a value of thirty billions of dollars. In this swelling tide of prosperous movement the natural increase of revenues will absorb the last remnant of our public indebtedness, and enable us to dismantle our expensive framework of internal taxation for national purposes. At the close of this century, if our entire railway system should bear to our whole territory a ratio less than half of what now exists in Illinois, we will have a mileage of one hundred thousand, carrying a tonnage and value of freight of still greater proportions.

The beneficent agency of our public land system in bringing about these splendid results has already been mentioned. The total amount of landed subsidies to railroads and wagon roads up to date is 185,890,794 acres, or 290,454 square miles, equal to the combined area of Great Britain and France, and exceeding that of Spain, Italy, and Switzerland. In addition to these land grants, government loans of credit have been made to the extent of \$60,860,320, of which \$24,371,000 were issued to the Central Pacific; \$26,638,000 to the Union Pacific; \$6,303,000 to the Kansas Pacific; \$1,600,000 to the Central Branch of the Union Pacific, late Atchison and Pike's Peak railroad; \$1,628,320 to the Sioux City and Pacific; and \$320,000 to the Western Pacific.

In this connection it is respectfully submitted that the time for such extraordinary subventions has passed. The pressure of public necessity is ample reason for the assistance already bestowed, but the benefits realized have been accompanied by serious countervailing evils, among which the erection of enormous landed monopolies stands prominent. The necessity for railroad endowments by the government, either in land or money, no longer exists. The great object of Pacific railway extension, speedy communication across our entire continent, has been



secured. The resources already developed by the completion of the initial enterprise, and others already undertaken, are ample to complete the work as rapidly as the best interests of civilization demand. It is therefore respectfully recommended that no further grants for internal improvements in the public domain be made, unless in cases of local and peculiar character, and in that case, instead of patenting the lands to States or corporations, that there shall be guaranteed to the beneficiary the proceeds of the sales of such lands as the railway is constructed.

#### THE GULF STATES.

The States lying upon the Gulf of Mexico, and drained directly into it, including Florida, Alabama, Mississippi, Louisiana, and Texas, are usually designated as the Gulf States.

All of these, excepting the last, belong to what are usually called the public land States, the general government, on its jurisdiction attaching to the territory embraced in them, becoming the proprietor of the soil, and the grantor from which all private titles to lands have emanated.

The first four and the State of Arkansas are the only public land States in what properly constitutes the cotton-growing region. As the last named is similar in climate and productions to the northern portions of Mississippi and Alabama, and along its southern border partakes of the character of Louisiana, it will be included under this head.

These five States, Florida, Alabama, Mississippi, Louisiana, and Arkansas, include 250,690 square miles, or 160,441,600 acres, constituting an area as large as France and England combined. Texas occupies the Gulf coast from the river Sabine to the Rio Grande, a distance of 400 miles; covers an area of 274,356 square miles, or 175,587,840 acres, possessing a larger territory than that embraced in the five States previously mentioned. The proprietorship of its soil has never been in the general government, but it belongs to the great galaxy of clustering States constituting our present Union, is classed as one of the Gulf States, and consequently falls within the scope of the present observations.

Adding its area to that of the other five, we obtain an expanse of 525,046 square miles, equal to 336,029,440 acres, a region embracing some of the most fertile and productive land to be found in either hemisphere, situated in a mild and healthful climate, circling half-way round a vast inland sea, covering a surface nearly as large as the Mediterranean, and draining river basins three times as capacious as the latter and much more important in the abundance and variety of their products. The circumstances of fruitfulness of soil, salubrity of climate, and superiority of commercial facilities have ever formed the basis of prosperity and power, and it is not difficult to perceive that, in these respects, the States fronting on the Gulf of Mexico possess advantages which, when fully developed, will have few parallels on the face of the globe.

Some idea may be formed of the future wealth and greatness they are destined to attain by considering that the united areas of France, Great Britain, Prussia, Bavaria, Belgium, and the Netherlands embrace only 514,220 square miles, something more than ten thousand less than are included within the limits of the six States named. These are among the most prosperous countries of Europe, and contain more than one hundred and five millions of inhabitants. Comparing them with our Gulf States, in respect to climate, soil, and position, the advantages would seem to be greatly in favor of the latter; for while all



the products adapted to the soil and climate of the former can be raised equally well in the States bordering on the Gulf of Mexico, these latter yield, besides, the important staples of cotton, sugar, and rice, and are capable of producing them in quantities sufficient to support all the markets of Europe and America; while large portions of several are well adapted to many of the semi-tropical fruits entering largely into the commerce of civilized nations.

When it is considered that the expenses of living are sensibly less in a mild than in a more rigorous climate, like that of the northern part of Great Britain, Prussia, and the Netherlands, it is obvious that the six States heretofore named will be capable, when their resources are fully developed, of supporting even a larger population than that which now occupies the European countries with which they have been compared. Their population in 1860 was reported at 3,643,597, white and colored; the white inhabitants numbering about 2,068,193, of which 151,735 were natives of foreign countries, mostly from Germany, Ireland, Scotland, France, and England. According to a recent census taken in several of these States the present population is probably somewhat less than it was in 1860; the result being one of the incidents of the late war, which, now that it is happily ended, will have cleared the way, it is sincerely to be hoped, for an increase of population and material prosperity in this favored region never heretofore witnessed.

It is proposed now to notice more in detail the leading characteristics of these States, commencing with the State of—

**LOUISIANA.**—It embraces 41,346 square miles, or 26,461,440 acres; 6,519,798 of which, including river, bayou, and lake surfaces of 1,804,800 acres, remained undisposed of on the 30th of June, 1869, the title to which still remains therefore in the general government. The number of acres disposed of by sales, pre-emptions, homesteads, grants for internal improvements, for education and other purposes amounted on the 30th of June last to 19,941,642 acres, the title to which is in the State, in private hands, or in companies formed for the construction of railroads or other improvements.

Of these lands there were, in 1860, included in farms 9,298,576 acres, leaving 17,162,864 acres not in farms. In 1850 there were included in farms only 4,989,043 acres, showing an increase in the decade of 4,309,533 acres. Of the land included in farms in 1860 only 2,707,108 acres were improved, 6,591,468 being unimproved. Hence the land not included in farms, and the land so included but not improved, amounted in 1860 to 23,754,332 acres; from which it appears that only about one-tenth of the land in the State had been brought to that condition which in the census tables is designated as "improved." Owing to the disturbing causes of the war, brought to a close in 1865, and the time required to organize a new system of labor, no considerable advance beyond that existing at the date of the eighth census can yet be expected, and the proportions of improved and unimproved lands are hence probably about the same as at that period. The number of farms in the State at that time was 17,328, being 3,906 more than in 1850. The cash value of farms was \$204,789,662, being an increase of \$128,975,264 in the ten years succeeding 1850. During the same period the value of farming implements and machinery had increased in value \$7,071,237, and amounted in 1860 to \$18,648,225. The value of live stock in 1850 was \$11,152,275; in 1860 it amounted to \$24,546,940.

**Population.**—In 1785, under the government of Spain, what is now the State of Louisiana contained 27,283 inhabitants. In 1810, after its acquisition by the United States, the population amounted to 75,556, of

which 34,660 were slaves. In the next ten years the population more than doubled, amounting in 1820 to 152,923, of whom 73,383 were whites. In 1850 the population of Louisiana was 517,762; in 1860, 708,002, of which number 357,629 were whites, 18,647 free blacks and mulattoes, and 331,726 slaves. Slavery being abolished, the whole population is free; and although both whites and colored appear to have declined in number during the war, yet, as immigration has been somewhat active since its close, the white population is probably greater now than in 1860, and the total nearly the same. The number of families in the State in 1860 was 74,725; the number of white persons to the square mile,  $8\frac{1}{2}$ ; total population at the rate of  $17\frac{1}{8}$  to the square mile. The population of France is at the rate of 174 to the square mile, a density which would give to Louisiana a population of 7,194,204.

In 1860 there were in the State 572 churches, 15 colleges, and 713 public schools; 1,530 students attended college, and 31,813 pupils the public schools. The Methodist was the most numerous religious denomination; the Baptist, Roman Catholic, Presbyterian, and Episcopalian following in the order stated.

Of the population, 1,035 were blacksmiths, 4,865 carpenters, 14,996 farmers, 6,473 planters, 21,976 laborers, 2,776 merchants, 698 lawyers, 1,149 physicians, 1,793 shoemakers, 1,193 teachers, 1,288 grocers, 6,833 clerks, 1,145 coopers, and 1,210 tailors.

Of the free population, 295,301 were natives of the United States, and 80,975 were born in foreign countries—Ireland, Germany and France, furnishing much the largest number; England Spain, Scotland, and British America following next in order. Of the total population, 222,192 resided in towns and villages; New Orleans, the commercial metropolis, containing 168,675; Baton Rouge, the capital of the State, 5,425; St. Landry, in the parish of St. Landry, 10,346; Donaldsonville, in the parish of Ascension, 11,484; and Algiers, in the parish of Orleans, 5,816.

*Character of the soil.*—The surface of Louisiana is generally low and level, nowhere attaining an elevation of more than two hundred feet above the level of the sea. In the south part nearly one-fourth of the State lies but ten feet above the Gulf, and is usually inundated by the spring floods, much of the southern coast being a permanent salt marsh. The bottom lands of the Mississippi along the whole course of the river within the State, on the west side, and on the east side from its mouth nearly to the city of Baton Rouge, are subject to overflow during high water, and can only be protected from inundation by the construction of levees along the river. The northern and western parts of the State, to the extent of about one-half of the total area, are undulating and somewhat diversified by low ranges of hills. These parts of the surface are covered with immense pine forests, interspersed with oak, elm, ash, walnut, sassafras, mulberry, poplar, hickory, magnolia, and other trees.

South of the central portion of the State, from the Bayou Teche to the Sabine River, are vast level prairies covering about four million acres of land. The area subject to overflow on the Mississippi within the State of Louisiana has been estimated at 4,000,000 acres; on Red River at 1,600,000, and on the Gulf coast at 2,600,000, making an aggregate of about 8,200,000 acres. Smaller bodies of similar lands are found on the Washita and some of its tributaries, and in other portions of the State. There have been selected in Louisiana, under the several acts of Congress granting swamp lands to the States, 11,318,317 acres, of which selection 8,430,254 have been approved by the general government, and nearly all patented to the State upon the conditions of reclaiming the

same. It will be observed that originally fully one-third of what is now the State of Louisiana was in the condition of swamp or overflowed land. Much of it has long been reclaimed and under a high state of cultivation. Being an alluvial deposit formed by the overflowing of the rivers, or by the shifting of their courses, these lands make, when reclaimed, the most fertile and productive farms and plantations in the State, and have for many years yielded immense crops of cotton and sugar.

In the northern and western parts, in the pine forests, the soil is frequently thin and sandy, but even here it is easily brought to a high state of fertility by the application of marl and gypsum, found in great abundance and of the best quality in this portion of the State. When thus fertilized it produces large crops of wheat, oats, barley, sweet potatoes, and even cotton and corn. It is the best soil for potatoes of both kinds, for grapes, peaches, plums, quinces, cherries, and other fruits, all of which flourish in great perfection and yield abundantly. Every portion of the State is traversed by numerous streams bordered by valleys of greater or less width, always exceedingly fertile. The soil of the prairies is rich and productive, covered at all seasons with indigenous grasses, supporting vast herds of cattle, sheep, horses, and mules, which are raised here with as little trouble and expense as in any other part of the United States.

The delta of the Mississippi included between the main stream and the Atchafalaya branch, is a sedimentary accretion many hundred feet in depth. It is about 200 miles in length, with an average width of from 60 to 70, containing an area of from 12,000 to 14,000 square miles, being about as large as the whole valley of the Nile from the cataract of Syene to the Mediterranean. It is equal in productiveness to that far-famed valley, and will render bountiful returns to its cultivators for generations, without manure and without dependence upon the overflowing of the river by which it was formed.

The husbandmen of the Nile rejoice in the overflowing of the river, because the clouds furnish no moisture to the thirsty soil; the planters of the valley of the Mississippi resist the inundation of their lands, and confine the river to its channel, because the rains are abundant for the most successful agriculture. It may be safely stated with regard to Louisiana, that all, or nearly all, its marshy and swamp lands are capable of reclamation, and that, when so reclaimed, there will be few if any States in the Union that will contain an equally large proportion of the very richest land, so admirably adapted to the production of some of the most valuable staples that enter into the commerce of the country.

There is, in fact, very little in the State which, with the facilities for obtaining lime, gypsum, and marl, and with the abundance of moisture during the period of vegetable growth along the Lower Mississippi, may not be rendered first-class land.

*Climate.*—Situated south of the thirty-third parallel of latitude, the temperature of Louisiana rarely sinks below the freezing point; and as all parts of the State are daily fanned by the refreshing breeze from the Gulf, the temperature of midsummer seldom rises as high as in places more remote from the sea in the upper valleys of the Mississippi and its tributaries.

The mean summer temperature for all parts of the State is about 82° Fahrenheit, that of winter 50° in the northern part and 55° on the parallel of New Orleans. The average temperature for the year is about 70° in the southern and 65° in the northern portions of the State, the latter having about the same climate as the central and northern por-



tions of Mississippi, Alabama, and Georgia, while the climate of the southern part is similar to Southern Mississippi, Alabama, and Georgia, and Northern Florida. The average temperature for the month of July is about  $88^{\circ}$ , and for December about  $53^{\circ}$ , showing a range of the thermometer of about  $35^{\circ}$ . The summers are long, but seldom or never oppressive, and the nights are always cool and refreshing in all parts of the State.

In the neighborhood of swamps and marshes miasmatic influences prevail during the fall of the year, producing the various types of fever incident to such localities; and the city of New Orleans and other towns on the river are sometimes visited by the yellow fever, which always appears first at some points in the West Indies and Central America, and may be considered in Louisiana as an imported disease. In the pine lands, and in all portions of the State beyond the influence of bayous and marshes, the climate is healthful, and many of the diseases incident to colder latitudes are comparatively rare. Many invalids from the North visit Louisiana and other Gulf States during the winter seasons in pursuit of health, and persons predisposed to consumption are generally benefited by a residence here if removal from a colder climate has not been too long deferred. When not visited by an epidemic, New Orleans appears to be as healthy as any city of similar size, and there seems to be little doubt that, by proper sanitary and quarantine measures, and the complete draining of the marshes in the vicinity of the city, it is quite feasible to prevent epidemics, and to render New Orleans as healthful as Philadelphia, New York, or Boston, at all seasons of the year, as it already is during the winter and spring. In the southern part of Mississippi, where the Gulf coast is high and dry, the climate is noted for its healthfulness, hundreds of persons from New Orleans and more northern cities flocking to Biloxi every summer in pursuit of health and pleasure; and as there is no reason why other portions of the coast, and as far inland as the sea breeze is sensibly felt, should not be equally salubrious in the absence of swamps, ponds, or other conditions favoring malarious exhalations, the conclusion would seem to be warranted, that when proper levees are constructed along the Mississippi, Red, Yazoo, and other southern rivers, and inundations of the low lands prevented; when the swamp lands are fully reclaimed, and their soil of unparalleled fertility placed under a high state of cultivation; in short, when the country becomes thoroughly drained and improved, the Gulf States will constitute emphatically the most healthful portion of our expansive domain.

The rainfall along the Lower Mississippi, according to Blodget's Climatology, averages about fifteen inches in the spring, twenty during summer, twelve in autumn, and eighteen during winter, making something over five feet during the year. The amount of precipitation is less copious in the southwest and western part of the State, amounting to an annual fall of from forty to fifty inches. The fall of sixty inches for the year is generally maintained northward to the Ohio Valley and eastward to the State of Georgia, diminishing slightly toward the northeast along the Atlantic coast, and rapidly toward the western plains. The peculiar adaptation of the Southern States to the growth of cotton consists very much in the frequent showers received in the spring and summer, during the time of vegetable growth, and the comparative dryness at the season when the lint is gathered from the bolls. Any great modification in this climatic law would completely change the character of the Southern States as a cotton-producing region. The States best adapted to the growth of this staple, on account of the most

favorable atmospheric conditions, are the States of Louisiana, Mississippi, Arkansas, Alabama, Georgia, South Carolina, the southern part of North Carolina and Tennessee, the northern part of Florida, and the eastern half of Texas. Favorable localities, it is true, beyond these general limits are found, both north and west, and much cotton has been and is still grown in the northern part of Tennessee and North Carolina, in the southern part of Missouri, and west of the Colorado of Texas.

*Agricultural products.*—In 1860 Louisiana returned 777,738 bales of ginned cotton, or something more than 3,100,095,200 pounds, ranking as the third State in the Union in the amount produced, being surpassed only by Mississippi and Alabama. Ten years previously the number of bales returned from Louisiana was only 178,737, Alabama, Georgia, Mississippi, South Carolina, and Tennessee, each yielding a larger product. Louisiana in 1850 ranking as the sixth State in the production of that staple.

The sugar plantations of Louisiana in 1860 furnished a supply of 221,726 hogsheads of sugar of 1,000 pounds each, and 13,439,772 gallons of molasses, being nearly the whole quantity of cane sugar and molasses produced in the United States, and about one-fourth of the entire quantity of sugar consumed. Besides these staples, the State produced at the same time 6,331,257 pounds of rice, ranking as the fourth State in the growth of that article.

The value of the three staples at the prices ruling in 1860 must have amounted to \$48,000,000. It should be remembered that in the same year there were also raised 16,853,745 bushels Indian corn, 2,060,901 bushels sweet potatoes, small quantities of wheat, rye, oats, barley, Irish potatoes, tobacco, hay, and orchard products, all of which yielded well and were extensively cultivated during the recent war; that the State had only 2,707,108 acres of land improved in farms; that some of this had been cultivated continuously without manure, according to the rude system of slave husbandry, for more than a century, and that none of it, in fact, has ever yet been treated according to the advanced principles of modern agriculture. When all this is considered, it must be conceded that the natural resources of Louisiana rank very high, and that when fully developed will be exceeded in few if any of the States in the Union. The counties, or parishes, as they are called in Louisiana, producing most cotton are those in the bottom lands of the Mississippi and the Red Rivers north of the thirty-first parallel; those producing sugar south of said parallel, in the low lands of the Mississippi, the Bayou La Fourche, the Atchafalaya and its branches, and Vermilion River. These are the lands subject to overflow, which have been rescued from the floods by a system of levees commenced prior to 1727, under the early French settlers, and in 1735 extended from English Bend, twelve miles below, to thirty miles above New Orleans, on both sides of the river.

They were constructed by the planters, each building a levee the length of his river front. In 1752 they extended twenty miles below and thirty miles above the city, and continued to advance slowly on the Mississippi, on the Bayou La Fourche, the Bayou Plaquemine, on the Atchafalaya and Red Rivers, and in 1844 were nearly continuous on the west bank from New Orleans to the mouth of the Arkansas River; and since the passage of the acts of Congress of March 2, 1849, September 28, 1850, and subsequent amendments granting swamp and overflowed lands to the States to aid in their reclamation and improvement, have been extended with interruptions, to Cape Girardeau, in the State of Missouri; and on the east bank from the upper part of Coahoma County to the lower part of Issaquena County, in the State of Mis-



Mississippi, from Vicksburg to Baton Rouge, where levees are needed, and from the latter city nearly to Point La Hache. A great portion of these embankments, however, are too low, and inadequate to effect the object for which they were intended, and according to the elaborate and able report of Humphreys and Abbot, of the bureau of topographical engineers, an expenditure of \$17,000,000 will be required to construct these barriers upon a scale sufficient to render them permanently secure against the inroads of the river at the time of its highest floods.

It has been estimated that the lands that would be protected from overflow by the construction of proper levees along the Mississippi, from its mouth to Cape Girardeau, would amount to twelve and a half million acres. The quantity of this land at present under cultivation in the States of Missouri, Arkansas, Mississippi, and Louisiana, will not exceed three and a half million acres, leaving for reclamation nine millions. Being of inexhaustible fertility, on the banks of a navigable stream, in a genial climate adapted to the cultivation of cotton, and the more southern to the cane, these lands become, when completely protected and drained, among the most valuable in the United States; certainly very cheap at \$50 per acre, yielding as they would, with even ordinary attention, an average of a bale of cotton or a hogshead of sugar per acre. At present most of them are not only worthless, but the prolific source of fevers and other diseases incident to malarial districts. When reclaimed they should be worth \$450,000,000, and by deducting one-third of this sum for deficiencies, will still yield a net return of \$300,000,000, and would continue to enrich their proprietors, and contribute to the general prosperity for generations.

One of the most important and profitable industrial enterprises of recent years is found in the operations on the Comstock lode, in the State of Nevada, an amount approximating one hundred and twenty million dollars having been extracted from its rich silver ores within the present decade. Yet it is perhaps safe to assume that, of the whole amount realized, fifty per cent., or from fifty to sixty millions, have been expended in explorations, sinking shafts, laying adits, timbering galleries, in the purchase of machinery, the erection of mills, reducing ores, and in miners' wages. If an equal sum were expended in reclaiming lands along the Mississippi and its lower tributaries, not nine million acres only, but twice that quantity, might be prepared for the plow. That sum would be sufficient to complete the levees on the parent stream; to subject the lower banks of Red River, the Atchafalaya, the Bayou Fa Fourche, and the Teché to the same treatment; to construct a dike along the Gulf coast and rescue four thousand square miles of salt marsh from the sea; leaving an unexpended balance sufficient to lower the level of Lake Okeechobee, and drain some five or six million acres of tropical lands in the everglades of Florida, and on the banks of the Kissamee. Nor would such an enterprise be involved in uncertainty. The discoverer of a mine may readily ascertain the value of the ore near the surface; but whether its richness will increase or diminish in depth, is a matter to be determined, generally, by experience, and after the expenditure of vast sums of money. But the reclamation of overflowed and marshy lands reduces itself to an easy problem of mathematics. An engineer can determine its feasibility and estimate with sufficient accuracy the expense to be incurred; and any sensible person familiar with the subject can tell the value of the land when reclaimed.

It may be asserted, therefore, as a proposition that cannot be successfully controverted, that opportunities for the employment of capital are to be found in the overflowed and marshy lands of Arkansas, Mississippi,



Louisiana, and Florida, not exceeded in the profits that may be realized by any of the great enterprises of the day.

With the swamp lands of these States brought under cultivation, the United States could supply all the cotton manufactories of Europe and America, produce all the sugars and sirups needed for home consumption, and contribute to the markets of the country a large proportion of the oranges, lemons, olives, cocoa-nuts, bananas, pine-apples, pomegranates, figs, citrons, guavas, arrow-root, Sisal hemp, and other semitropical fruits and products at present annually imported from the West Indies, Central and South America, and countries bordering on the Mediterranean. All these articles can be grown successfully in the southern parishes of Louisiana, and in the peninsula of Florida. Throughout all the Gulf States the peach, apricot, nectarine, and grape thrive finely, needing scarcely any attention.

In the poorest pine barrens of Louisiana, the peach is a vigorous grower and an abundant bearer, and the grape succeeds equally well. It is thought by many that the saline atmosphere of the coast prevents or diminishes the tendency to mildew and rot so generally witnessed in the grape in the interior sections of the country. At all events, the experiments thus far made in grape-growing and wine-making in the northern parishes of Louisiana have been abundantly successful. From the great and continually increasing demand for grapes and pure wine, for peaches and other fruits, either dried, canned, pickled, or preserved, no more promising undertaking, on a small capital, could probably be ventured upon, than the orchard and the vineyard business in some of the parishes north of Red River.

*Stock-raising.*—The prairies of the central and southwestern portions of Louisiana have been long celebrated for the great number of sheep and cattle annually raised there for the New Orleans market. All kinds of stock keep in good condition during the winter, without any other food than the prairies afford, and sheltering them from cold, as is necessary in more northern latitudes, is never thought of.

The experiment has been tried of fattening hogs on sweet potatoes; and it is asserted by those whose statements are entitled to credit, that they are equal in every respect to corn, bushel for bushel; and that if mixed with barley in the proportion of one-fourth or one-third, a much better quality of pork is produced than by feeding corn, the quantity also being equal if not greater.

All kinds of cattle are fond of, and fatten readily on, sweet potatoes; and when it is remembered how well adapted the Gulf States are to the growth of this esculent, that from one hundred and fifty to two hundred bushels to the acre are an ordinary average crop, six hundred bushels being sometimes produced, it becomes apparent that in reference to raising and fattening stock they hold an important advantage, and one that it will be difficult to equal in any other latitude.

Barley yields as abundantly in Louisiana as in any other State, and in fact the experience of the last ten years has demonstrated that all the small grains do well, and when cultivated with the same care and intelligence they receive in the Northern and Northwestern States, yield equal, or even better, returns.

*Minerals.*—The northern and western portions of the State are well supplied with mineral deposits—iron, lead, coal, lime, soda, copperas, gypsum, marl, and potters' earth being found in numerous localities. Copper and petroleum are said to have been recently found in several of the parishes. Salt exists in nearly every part of the State, and iron

ores of excellent quality extend in a continuous field from the Washita to the Sabine.

*Commercial facilities.*—In commercial facilities Louisiana stands unrivaled. The Mississippi flows along its borders and through the interior for eight hundred miles. Red River is navigable within the State for five hundred; Washita, Tensas, and Little Rivers furnish navigation for five hundred miles more, and, during high stages of water, the La Fourche, the Atchafalaya, the Teché, Vermillion, and Sabine, add eight hundred more to river communication. Besides these, Lake Pontchartrain, Lake Borgne, Lake Maurepas, Pearl and Amite Rivers furnish transportation for a large scope of country. Rivers, bayous, and lakes traverse the State in every direction, and steam communication cannot be less than two thousand miles, being never interrupted by ice.

Railroads are in progress crossing the State from the Mississippi westward to connect with the roads in Texas—one commencing at New Orleans, the other on the west bank of the river, opposite Vicksburg. The New Orleans, Jackson and Great Northern railroad connects the commercial metropolis with the system of railroads north of the Ohio River.

*New Orleans.*—The learned jesuit, Charlevoix, visiting New Orleans in 1720, the year it was founded, predicted that the three great cities of the western continent would be built upon the sites now occupied by Chicago, St. Louis, and New Orleans, and that the last would be the largest city of the New World, and have the most extensive commerce. This remarkable prediction was made before Chicago or St. Louis existed, even in name, and when New Orleans contained but a few rude cabins. That this opinion was based upon sound reasoning appears to receive continual confirmation from the surprising growth of the two cities first named within the last thirty years; and although the last mentioned has not hitherto enjoyed the prosperity to which its advantageous position entitles it, the cause is sufficiently apparent upon reflection, and is obviously of a nature to yield to the influence of a more enlightened and enterprising policy than has hitherto controlled the destinies of that city. Should it ultimately fail of realizing the expectations of the celebrated traveler above named, it will surely not be for want of natural advantages such as no other city in the United States enjoys, and can only be accounted for upon the theory that the citizens and capitalists of less-favored localities, by greater energy and sagacity, by the inauguration of a system of internal improvements, by unfettering the avenues of commerce and cheapening transportation, have diverted from New Orleans a large portion of the trade that would otherwise naturally reach the markets of the world through that port.

Probably no city of ancient or modern times has had commercial advantages equally great. It commands the outlet of a navigable river extending through twenty degrees of latitude, which, with its tributaries, traverses a region a million and a quarter square miles in extent, furnishing sixteen thousand six hundred and ninety-four miles of steam navigation. It is thus brought into direct water communication with a population of twenty millions, certain to exceed fifty millions before the end of the present century. Its merchants, through this remarkable river system, have access to a fertile country as large as Europe from the Atlantic to the Russian frontier, from the Mediterranean to the Baltic, yielding bountifully all the staples of the temperate zone. They can collect the vast surplus produce of this extensive region, and ship it in bulk from the upper waters of the Mississippi and the Missouri to the eastern shores of the Atlantic at less cost for transportation than



would be required to carry it by rail from the Mississippi to our Atlantic seaboard. When the canal across the Isthmus of Darien is once undertaken and completed, this produce can be carried through the port of New Orleans and laid down at Hakodadi or Shanghai at less than it would cost to transport it by rail from St. Louis to San Francisco. There is a continually growing and expanding commerce with the West Indies and Central and South America, and the exchange of commodities between these parts and the States washed by the Mississippi and its tributaries ought to be, and certainly can be, more cheaply made by transportation on these natural highways than by more roundabout and expensive channels of trade.

It is to the interest of the whole valley of the Father of Waters that the commercial facilities of this great river system should be fully developed. River transportation being less than one-eighth of the expense by rail, every cultivator on the banks of the Missouri, in the valley of the Ohio, and of every other tributary, is directly interested in the question, not only to the extent of this difference in the price of freight, but to the further extent of the influence indirectly resulting from this condition of things, in the growth and prosperity of cities and the adjacent rural population throughout the whole valley. New Orleans, having the choice of position in respect to this system, may command the commerce of this valley, and in respect to all heavier freights, at least, need fear no competition except from the indifference or supineness of its own citizens, or the want of enterprise of its capitalists.

That the climate is naturally healthful would appear evident from the fact that other cities and plains in higher latitudes have been much more subject to pestilence, and presented mortuary statistics much more unfavorable from the influence of marshes less extensive, there is reason to believe, that those interposed between the city of New Orleans and Lake Pontchartrain, and by a series of shallow ponds and stagnant pools between it and the Gulf.

The territory known as the Tuscan Maremma was once the seat of opulent and prosperous cities, and only became an unhealthy region when the hydraulic works of its earlier inhabitants were destroyed, and the waters of the Ombrone, instead of being conducted to the sea, overflowed its banks, depositing their slimy sediment in the valley, creating marshes and lagoons. In consequence of this change in the drainage of the river, the coast of Grosseto became so exceedingly unhealthy that what was once a densely populated district became almost a desert, and its former salubrity is being restored by the skill of its engineers and the improvements introduced to drain the marshes.

The population of the district in 1841 was only 80,000, of which number 35,619 were sick during the year, and the mortality of the population of Grosseto was nearly four per cent. In 1842 the improvements introduced began to show decided effects, and in three years from June 1, 1841, the number of cases of sickness had declined from 35,690 to 9,200 for the year ending June 1, 1844. Similar causes have produced like effects on the coast of Lucca; and the city of Viareggio, once shunned as the abode of disease and death, has, by a system of hydraulic improvements, become a favorite resort, and is now frequented for its sea-baths and its general salubrity.

The construction of improvements upon an expansive and liberal scale for draining the swampy and marshy lands in the vicinity of New Orleans, and a complete and thorough system of sewerage, there is good reason to believe, would make that city one of the most healthy in the United States; and the consequent influx of foreign capital, and



enterprise from the Western States and from Europe, would secure the rest. The prosperity of New Orleans would become the prosperity of Louisiana, and of the whole valley of the Mississippi.

*Inducements to immigration.*—A leading object of this article is to call attention to the inducements presented in the Southern States of the Union to immigrants either from the Northern States or from Europe, to the end that their industrial interests may be re-established, and the cultivation of valuable staples carried to an extent far exceeding that of any former time. In all the Gulf States, in fact in all of the States involved in the recent war against the government, including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia, large tracts of unimproved and unoccupied land exist, which may be purchased from individuals at prices ranging from fifty cents to ten dollars an acre, and wild unoccupied land is seldom held at so high a figure as the last-named price. Unimproved land of the very best quality adapted to the cereals, to fruits and vegetables, to grazing or to gardening, may be had in any of these States at from one to five dollars per acre, and the best quality of cotton and cane lands may be bought at similar prices.

In some of these States opportunities are frequently met with to purchase improved farms, producing cotton, sugar, or rice, for less than it would cost to erect the improvements. Large tracts, from one thousand to fifty thousand acres, are frequently for sale, either in one body or in subdivisions to suit purchasers, presenting most admirable opportunities for the settlement of colonies.

These States are generally among the most salubrious in the whole country, and in all of them localities may be selected as healthful as any part of the world. What are called the unhealthy districts are those bordering on marshes, and there are few of these in which the diseases are of a virulent type, and in which immunity from sickness may not be secured, even by the new settler, by avoiding unnecessary exposure. To the acclimated there is no locality that is, strictly speaking, unhealthy, as the population generally is as robust and as much noted for longevity as in any part of the United States. It may be observed, too, that the more insalubrious sections are those containing the richest soil, and which, when reclaimed, will return the largest crops and continue productive for several generations without the application of fertilizing agents. When the wet lands are drained and brought under cultivation, fevers will disappear with the malaria that causes them, as has been the case in other marshy districts in our own and other countries.

Including West Virginia, these States, embrace an area of 774,702 square miles, or 495,809,280 acres, a territory nearly four times as large as France, and if as densely populated as that empire, would accommodate one hundred and fifty millions of people. Their aggregate population in 1860 was 9,103,333, and since that date the ravages of war have reduced it somewhat, and at the present time may not exceed nine millions. There is room, therefore, in the States named for an immigration more than twice as numerous as the whole population of the United States at this time, and even then they would not be as thickly peopled as either France, Great Britain, or Prussia.

The climate of the whole region is temperate, and as genial as that of France, and in much the larger portion quite as healthy. The immigrant may select, according to choice, lands adapted to farming, grazing, fruit-growing, gardening, or the vintage, or, if he prefer, lands suited to sugar-cane, rice, the cultivation of the fig, the olive, orange, lemon, arrow-root, indigo, Sisal hemp, and other semi-tropical products.

Should sheep husbandry or the dairy be more congenial to his tastes, no better locality could be found than the mountain regions of West Virginia, North Carolina, East Tennessee, and the western portion of South Carolina, Georgia, and Eastern Alabama, which will furnish pasturage throughout the year for millions of cattle and sheep. For grazing, the dairy, sheep husbandry, the vintage, and fruit-growing, the mountain region of the Atlantic slope cannot be excelled. Unlike mountains generally, the slopes of these are mostly free from surface rock and yield rich and abundant grasses almost to their very tops. They are remarkably salubrious, and have long been celebrated for their many excellent springs and streams, many of the former being annually visited for their medicinal qualities.

This mountain district is almost unoccupied, and hundreds of thousands of acres of the finest grazing land in the country may be bought for an almost nominal sum. Of the 496,000,000 acres embraced in these States only about 57,000,000 are improved, and only about 200,000,000, improved and unimproved, included in farms; leaving still in a wild, uncared-for condition 295,342,833 acres. If we allow 50,000,000 acres of the whole area for river and lake surfaces, and waste and ir reclaimable lands, there remains still an aggregate of unoccupied and unimproved land, not included in farms, of 245,000,000 acres, in area considerably larger than France. But as not more than 57,000,000 are improved, it follows that more than seven-eighths of the whole still remain wild and uncultivated.

Nearly all these States have commissioners of immigration, through whom purchase of lands may be made and any information obtained. The most successful mode of immigration to our Western States from foreign countries, of late years, has been by colonies; and there is no doubt that the advantages of such a system over that of the individual plan are so manifold that it should be adopted wherever practicable. Companies or colonies can be easily formed in any of the countries of Western Europe, and if these be prudently and carefully made up so as to embrace the various trades and callings required in new settlements, and the care of purchasing land, and making arrangements for transit from the old country to the new, confided to the care of upright and discreet men, there can be but little chance of failure, and colonies thus managed will be almost certain of success.

Desirable locations are so numerous that if a suitable purchase cannot be made at one point, it certainly can at another; and as each of the States is anxious to secure intelligent and industrious settlers, there is no danger that favorable terms will not be readily obtained. It is not intended, by urging the plan of settlement by colonies, to recommend any of the systems of communism or socialism, as they are sometimes called. Few or none of these have succeeded in this country. When the colony is once located, each member should be as independent of all the others as every well-conducted citizen in any settled community is of his neighbors. The advantage of the colonial plan consists in its bringing together, as immediate neighbors, those of similar habits and tastes, who can support and encourage each other by mutual counsel and those offices of neighborly kindness which a new settler in a strange country so frequently stands in need of. In a short time new acquaintances are formed, the immigrant grows familiar with the customs of the country and becomes merged in the mass of its citizens.

The general government still owns in the State of Louisiana, Mississippi, Arkansas, Alabama, and Florida, about forty seven million acres of undisposed domain. The water surfaces of lakes, rivers, and bayous may



cover some seven million acres, and perhaps ten millions more may be set down for irreclaimable waste, leaving thirty millions subject to disposal under the homestead law. Any *bona fide* settler is entitled to enter eighty acres of this land without any other consideration than actual settlement and the payment of the land officers' fees, amounting to ten or eleven cents per acre. When government land suitable for a settlement cannot be found, tracts adapted to the purpose may always be purchased from individuals at very low prices.

In this classification of the Gulf States, Louisiana has been first considered, as furnishing an illustration of the general peculiarities of that region, yet it is deemed proper to present some details in reference to each of the other Gulf States containing public land; the next in order, advancing eastward, being the State of—

MISSISSIPPI, which became a State December 10, 1817, and was the seventh one admitted to the Union. The name is derived from the highway washing its western border, in a serpentine course, from the thirtieth to thirty-fifth degree north latitude, a distance of five hundred miles, and, according to the aboriginal language, signifies the "Great River," or the "Great Father of Waters."

It lies west of Alabama, south of Tennessee, east of Arkansas and Louisiana, and south of the last-named State. It embraces an area of 47,256 square miles, or 30,179,840 acres, with a coast line of eighty-eight miles on the Gulf of Mexico. The extreme length of the State from north to south is three hundred and thirty-two miles, and in width one hundred and eighteen miles on the north boundary, or thirty-fifth parallel, and one hundred and eighty-nine on the thirty-first parallel.

In speaking of Alabama, that part of the present area of Mississippi lying north of latitude  $31^{\circ}$ , with that of Alabama, was organized under a territorial government by act of Congress approved April 7, 1798, with the consent of Georgia, by which, in 1802, it was formally ceded to the United States as a part of the public domain. That portion of the country south of  $31^{\circ}$  of latitude, extending from the Pearl to the Perdido River, was originally included in the Louisiana acquisition by the treaty at Paris, of the 30th April, 1803. Alabama with its present limits, was detached from the Territory of Mississippi by act of March 3, 1817, and on the 10th December following, as mentioned above, Mississippi was admitted, under the federal Constitution, as a State, with its present limits.

Its surface is generally undulating; level in some districts, but nowhere rising into mountains or extensive hills—geographical features which characterize other sections of the Union. The general course of the streams is south and southwest, indicating such to be the general slope of the country. A small portion, however, of the area in the northeast is drained by the Tombigbee, inclining to the southeast, while the region in the southern part of the State, embracing the valleys of the Pearl and Pascagoula Rivers, seeks the Gulf of Mexico by a southeastern course.

The principal affluents of the Mississippi from this State are the Yazoo, Big Black, and Homochitto Rivers. The Yazoo, five hundred miles in length, is navigable for small steamers one hundred and fifty miles; its principal affluents being the Yallobusha, Tallahatchee, and Sunflower Rivers. The Big Black, joining the Mississippi near latitude  $30^{\circ}$ , is two hundred miles in length, and is navigable for fifty miles. Bayou Pierre waters the region between the Big Black and Homochitto; the latter stream watering the southwestern part of the State and uniting with the Mississippi forty-three miles south of Natchez. The Amite and



Tangipahoa rise in the southern portion of the State and flow south; the former into Lake Maurepas, and the latter into Lake Pontchartrain, in Louisiana. Pearl River, one hundred and thirty miles long, rising in the interior, forms the common boundary between Mississippi and Louisiana south of latitude 31°, and empties into the Rigolets, the outlet of Lake Pontchartrain. The Pascagoula River also has its source in the interior, being formed by the Leaf and Chickasawha, with its outlet in the Mexican Gulf, through the Gulf of Pascagoula.

The whole area of the State may be regarded as abundantly well watered. The region between these numerous water-courses consists of table lands and ridges attaining to no considerable altitude above the general level of the country. The valleys are often level, and the banks of streams low in many places, resulting in extensive swamps and districts of overflowed land.

The surface of the country bordering on the Gulf of Mexico consists of a sandy soil, very productive, but little elevated above the highest tides, and the surface, to the water's edge, is covered with a heavy growth of magnolia, white pine, and live oak interspersed. Extensive swamps are found at the confluence of the Pearl and Pascagoula, while the country intervening and comprising the valleys is watered by numerous small streams, generally level, with dry, rich soil, producing a luxuriant growth of yellow pine and pasturage, the more elevated portions being intermingled with lofty canes. The southeastern portion of the State comprises a variety of soil and surface, some parts being broken, with a poor soil, while others are fertile valleys. It is a fine grazing region, and cattle-raising is an important interest in that locality. Some cotton is produced; corn, also, and the various kinds of small grain are successfully cultivated.

The northeastern part of the State, embracing the region watered by the Tombigbee and its numerous affluents, is mostly prairie, there rarely being a tree to break the general monotony of the surface, which is level, dotted with lagoons and marshes, and irrigated by dull, sluggish streams. The soil generally consists of a dark heavy loam, highly impregnated with lime, and the surface covered with a luxuriant growth of grass. This fertile region embraces part of the great cotton-growing belt in Alabama. Various kinds of grain grow here and yield abundant crops. The lands contiguous to the Mississippi consist, for the most part, of alluvial bottoms, in some places one hundred miles wide, embracing an estimated area of seven thousand square miles, extending south of Memphis, Tennessee, fifty miles below the mouth of the Yazoo. The soil is exceedingly rich and productive, but liable to overflow from the Mississippi. These lands extend back to the bluff formation, which, in some places, closely approaches the river, overhanging it in cliffs often two hundred feet high.

These bluffs are regarded as of the age of the Rhenish loess, consisting of beds of yellowish loam, sand, and clay. The superficial deposit of yellow silicious marl was accumulated just prior to the present geological period, after the surface had received its present outline by erosion, and contains numerous fresh-water and land shells identical with species now living, together with bones of extinct animals mingled with the bones of species now existing. This formation is superimposed on beds of the Eocene period, which makes its appearance at the foot of the bluffs near Vicksburg. The country extending back from these bluffs rises imperceptibly higher in penetrating the interior of the State, finally spreading into extensive plains, intersected by numerous streams, giving the general outline of the country an undulating appearance.

Mississippi and Alabama lie between the same degrees of latitude, the temperature being equable, and the climate in most sections very healthy.

The southern part of the State abounds in yellow pine of luxuriant growth, from which large quantities of naval stores are produced. In the swamps and on the overflowed lands black and white cypress occur, the latter being an excellent variety of lumber for many domestic purposes. The timber in the northern section of the State is mostly oak and hickory; the other species found in Mississippi include black walnut, gum, poplar, maple, magnolia, beech, buckeye, dogwood, persimmon, tulip, and pawpaw.

The soil and climate are well adapted to the culture of apples, peaches, plums, and all other varieties of fruit grown in temperate climates, while the fig and orange attain to perfection in the southern portion of the State. Vegetables, including a very extensive variety, also grow plentifully.

Among the field crops cotton has been the great staple for many years, the average yield comparing favorably with that of any State in the Union. The soil and climate are well adapted to the culture of all the crops produced in the same latitude in other regions, including corn, wheat, rye, oats, buckwheat, Irish and sweet potatoes. Among other agricultural products are hay, clover, and grass-seed, peas and beans, flax and flax-seed, tobacco, hops, and sugar-cane. The grape is successfully cultivated in most localities in the State. Silk culture has received some attention, and the experiments, although on a limited scale, have proved satisfactory.

An extensive railroad system has been projected in Mississippi, designed to place every important commercial point in direct communication with the great marts of the country. In 1850, seventy-five miles of railroad were in operation; in 1860, four hundred and forty-five miles had been completed, while on the first of January, 1869, the number of miles in operation amounted to eight hundred and eighty-nine.

The seat of government is at Jackson, on Pearl River; this city contains about four thousand inhabitants. The largest and most important commercial cities are Natchez and Vicksburg; the former two hundred and eighty miles above New Orleans, and the latter one hundred and twenty miles above Natchez, on the Mississippi. The other important river towns are Grand Gulf, Warrenton, Princeton, Tallalula, Greenville, Bolivar, Commerce, and Concordia, on the Mississippi, and Canton and Granada, on the Yallobusha. Holly Springs, on the Mississippi Central railroad, in the northeastern part of the State, and Pearlinton, Biloxi, Shieldsboro, Mississippi City, and Pascagoula, are also promising commercial centers.

Since the date of the last report 78,810 acres of public land have been added to the productive area of the State, the residue undisposed of being 4,721,190 acres, all of which has been surveyed. District land offices are located at Jackson, and are prepared to receive applications for the entry of public land as initiative to securing an ultimate title under the provisions of the homestead law of June 21, 1866.

ALABAMA, signifying in the aboriginal language "Here we rest," lies north of the State of Florida, with a coast line of sixty miles on the Gulf of Mexico, west of Florida, east of Mississippi, south of Tennessee, and west of Georgia, the Chattahoochee River separating the two political divisions for one hundred and fifty miles from their southern boundary. It embraces an area of 50,722 square miles, or 32,462,080 acres. The area included in Alabama north of latitude thirty-one degrees originally



comprised part of the country conceded to Great Britain at the peace of 1763, and constituted a portion of the region claimed by the colony of Georgia, relinquished by Great Britain as a part of the United States by the treaty of peace of 1783. That portion of the present area of the State south of latitude thirty-one degrees, originally constituted part of the Territory of Louisiana, ceded to the United States by the treaty at Paris of April 30, 1803.

By an act of Congress of April 7, 1798, the Territory of Mississippi was carved out of the region claimed by Georgia west of her present limits, which title was not finally relinquished until 1802. By an act of March 3, 1817, Alabama was organized into a territorial government with its present limits, and admitted into the Union as a State December 14, 1819.

The extreme length of the State from north to south is three hundred and thirty-six miles, while in breadth it ranges from one hundred and forty-eight to two hundred miles. The surface of the southern part of Alabama is comparatively level along the coast, being little above the level of the sea, but gradually rising in the interior. In the northern part of the State the surface is more elevated, and at the same time more rugged. The Blue Ridge Range of the Alleghany Mountains enters the northern part of the State near the northeast corner, and extends in a southwesterly direction. The mountains become very much depressed on reaching the limits of the State of Alabama, and strictly speaking, form only the southern termination, or the foot hills, of the great Appalachian system.

The extreme northern section of Alabama is a part of the great valley of the Tennessee, which passes one hundred and fifty miles through the State by a circular course, entering the State at its northeast corner with a southwesterly course, leaving at the northwestern corner, and emptying into the Ohio River at Paducah, Kentucky, fifty miles above the confluence of this latter stream with the Mississippi.

Alabama is a well-watered region, possessing several large and navigable streams, all of which, with the exception of the Tennessee and the streams flowing into Pensacola and Choctawhatchee Bays, in Florida, unite to form the Mobile River, and ultimately discharge their waters into Mobile Bay. The Tombigbee rises in the northeastern part of Mississippi, enters Alabama near the thirty-third degree north latitude, flowing in a southeasterly course, receiving numerous small affluents, until it is joined by the Tuscaloosa or Black Warrior, thence coursing south until it unites with the Alabama to form the Mobile. The Alabama is formed by the junction of the Coosa and Tallapoosa, which have their respective sources in Northern Georgia. The Cahawba, which rises in the interior and waters the region between the valley of the Black Warrior and Coosa, unites with the Alabama two hundred and sixteen miles above Mobile, or one hundred and seventy-one miles above the mouth of the Alabama. The Escambia, Yellow-water, and Blackwater, rise in the southern part of Alabama, flow into Florida, emptying into Pensacola Bay, while the Choctawhatchee, watering the extreme southeastern part of the State, enters Western Florida, discharging its waters into a bay of the same name. The Tombigbee is navigable, throughout all its course in the State, about five hundred miles, and to Columbus, Mississippi; and the Alabama throughout its entire length, three hundred miles; and the Coosa, for small class steamers one hundred and eighty, the Black Warrior one hundred and fifty, the Cahawba one hundred miles, and the Tallapoosa forty.

The bays on the coast are Grand, Perdido, and Mobile, the two former being unimportant in a commercial point of view, while the latter is a



magnificent body of water, thirty miles long and from three to eighteen broad, affording the most ample facilities for trade. Alabama has one thousand five hundred miles of navigable waters, possessing superior and unusual natural advantages for intercommunication and transportation.

The soil of Alabama, like the surface, is varied, but generally fertile, and capable of producing valuable crops of all the staples of that latitude. In the northern part of the State, where mountains are the prevailing feature of the country, the soil on the uplands is generally thin, but well adapted for grazing purposes, while the valleys are very fertile, producing luxuriant crops of cereals and vegetables. In the central portion, where the surface is less elevated and broken, extensive prairies or savannas abound, being well watered, and generally well adapted for agricultural or grazing pursuits, the bottom lands on the streams being especially rich and productive. The southern portion of the State is still more level, rising little above the sea-coast, and consists of extensive prairies, pine barrens, and alluvial river bottoms, the latter generally of remarkable fertility.

The valley of the Tennessee, in the extreme northern portion of the State, embracing over seven thousand square miles in this political division, comprises some of the choicest agricultural land in the State. The great valley of the Alabama, including its tributaries, which embraces a very extensive area in the State, is one of the most valuable agricultural regions on the continent.

The winters of Alabama are mild, the latitude approaching within seven degrees of the tropics, while the temperature in summer is greatly mitigated by prevailing oceanic breezes, rendering the nights, even in the hottest season, cool and refreshing. From the most reliable data on hand it appears that the temperature in summer ranges from 60° to 104° Fahrenheit, in winter from 18° to 82°, and in spring and autumn from 20° to 95°. The temperature seldom exceeds 95°, the hottest weather being in June, while the mean temperature is about 63°. The State has but little snow-fall, and ice rarely attains sufficient thickness, even at the north, to impede navigation. It is, in general, noted for healthfulness and salubrity of climate.

For many years cotton has been the principal crop of this State. The extent of this important staple produced placed Alabama among the first cotton-growing States of the Union, while the average yield per acre is rarely exceeded by any other region. In those localities where the various branches of agriculture are regulated and conducted with science, skill, and capital, the variety, character, and extent of the crop produced is the best evidence of the adaptability of the soil and climate for special objects.

The region in Alabama specially adapted to the culture of cotton occupies a belt north of the great timber region in the southern part, extending across the State from east to west, being about one hundred miles in width from north to south at the western border, near sixty in the interior between Selma and Montgomery, and near the latter width at the eastern border. It embraces an estimated area of eleven thousand five hundred square miles. In regard to the extent of the crops of this important southern staple, it is generally conceded to be, for 1866, 429,102 bales; for 1867, 239,516; that of 1868 being 316,195 bales, or 127,678,000 pounds.

Corn is cultivated extensively and is next to cotton as a staple. All varieties of potatoes are extensively raised, yielding abundant crops, which, with corn, constitute the most important article of vegetable food produced. A large area of the State, including the valleys of the Ala-

bama and Tennessee, is well adapted to wheat, oats, and barley. Besides these, the soil of various sections has proved suitable for the culture of tobacco, sugar-cane, buckwheat, hops, flax, rice, grapes, and an extensive variety of fruits and vegetables. These profitable branches of rural industry have not hitherto received the attention to which they are justly entitled.

Owing to the fact that all kinds of fruits and vegetables mature earlier in the Southern States than at points of higher latitude, the culture of garden and orchard products for northern markets will always prove a matter of the highest importance to the southern agriculturist. These interests will expand with the development and improvement of the country and the advance of facilities for transportation and inter-communication, but the demand will also increase in a ratio commensurate to the supply, while the prices which such products always command cannot fail to render from these branches of husbandry ample rewards for the toil bestowed and capital invested.

Alabama, on account of her surface, soil, and climate, possesses superior advantages as a grazing region, a branch of industry which has already become an extensive interest. Water is abundant, the climate mild, the grass excellent, nutritious, and abundant throughout nearly the entire year, so that in most sections of the State stock require little feeding, shelter, or other attention.

Alabama is by no means wholly dependent upon the fertility of soil or wide range of garden or orchard products to attract to her fields of industry the capitalist, the farmer, or the laborer desirous of securing a spot upon our broad domain which they may justly call their own, and upon which they may erect habitations and enjoy the blessings and comforts of a home. The mineral deposits are extensive, varied, and no less valuable than the products of the soil. This State embraces a part of the great bituminous coal field of the United States, including an estimated area of four thousand three hundred and thirty-two square miles. There are three distinct coal fields in the valleys of the Black Warrior, Cahawba, and Tennessee.

Potters', porcelain, and fire clays, and materials for the manufacture of hydraulic lime, occur in abundance in the mineral regions. In close proximity to valuable deposits of coal, iron ore has been discovered. From the proximity, accessibility, and richness of these mineral deposits, with the facilities of transportation, which are daily increasing, they must eventually prove a source of immense wealth to the State.

The prevailing geological formation is limestone, in which deposits of galena and manganese are found distributed in several places. Marbles of different varieties, particularly black and variegated, granite of superior quality, and others, occur in large quantities in various localities. Gold and copper have also been found in the northeastern part of the State, but not yet in quantities sufficient to pay for the exploitation. Among the other minerals found scattered throughout the State are syenite, steatite, cobalt, vivianite, carite, calcite, dolomite, and quartz crystal. Springs, highly charged with mineral qualities, particularly chalybeate and sulphur, are frequently met with in various localities.

The flora of this section embraces an extensive variety of species. The great timber region extends across the State from east to west, and from the southern border on the east, forty miles north on the eastern boundary, and from the Gulf north one hundred and thirty-two miles. The prevailing species is yellow pine (*pinus australis*) in vast quantities and of excellent quality for all economical purposes; also, yielding tar,

pitch, and turpentine. Along the streams and on the low lands the timber consists chiefly of oak, cypress and loblolly. The principal forest trees in the northern and central portions of the State are oak, gum, hickory, cedar, walnut, poplar, locust, chestnut, pine, maple, and elm along the streams, while the mulberry grows luxuriantly.

In addition to the extensive system of marine communication Alabama has an important railroad interest. There were, in 1860, seven hundred and forty-three miles of road in operation, which, on the first of January, 1869, were increased to nine hundred and fifty-three miles, with a considerable extent of road projected or in process of construction, designed to form a very complete system within the limits of the State, and to secure connection with the expansive railroad system of the country. Montgomery, the capital, on the left bank of Alabama River, three hundred and thirty miles above Mobile, is an important railroad center and cotton depot, with a population of ten thousand.

Mobile, advantageously located at the head of Mobile Bay, and near the mouth of a river of the same name, has a population of thirty thousand, and is the largest and most important commercial city in the State; it has an extensive foreign and domestic trade, and ranks next to New Orleans as a cotton market. The other principal cities and towns are Huntsville, Wetumpka, Tuscaloosa, Talladega, Florence, Athens, Selma, and Jacksonville.

The population of the State in 1850 was 771,623; 1860, 994,201; and in 1868 it was estimated at 1,100,000. The assessment of real estate for the year ending August 31, 1868, was \$98,908,572, and of personal property \$26,037,572, while the estimated true value of real and personal estate on a gold basis, for 1868, was \$450,000,000.

Persons desiring to immigrate to Alabama may find opportunities to engage in every calling in life. Those desiring to cultivate corn and cotton should select the central portion of the State, where may be found a soil and climate unsurpassed, with excellent and increasing facilities for transportation, and access to market; where it is desired to cultivate these great staples in conjunction with vine culture and stock-raising, the valley of the Tennessee should be selected.

The southern portion of the State, including the extensive timber region, offers superior inducements to those who desire to manufacture lumber and naval stores, or to cultivate fruits and vegetables; and those desiring to engage in mining pursuits will find in the mineral region a rich and uncultivated field of operation; while such as may prefer to engage in the manufacture of cotton or iron should locate between the great mineral and cotton regions, where they may find inexhaustible water-power uninterrupted by ice, and coal in abundance, while the raw material being near at hand, saves the cost of transportation. Here a genial and healthful climate exists, the means of conveyance by water are ample, and facilities for transportation by rail are constantly increasing.

During the last fiscal year 209,004.44 acres were disposed of in the State under the operation of the homestead law, the only means by which title to the public lands can be acquired in the Southern States, leaving 6,581,305.40 acres yet to be disposed of. United States land officers are located at Mobile, Huntsville, and Montgomery, who are prepared to entertain applications for the entry of the residue of public land in this State.

FLORIDA is the most southern public land State, lying south of Alabama and Georgia, with the Atlantic Ocean washing four hundred and



seventy-two miles of its eastern border, and has a coast line of six hundred and seventy-four miles on the Gulf of Mexico.

This region of country, discovered by Cabot in 1497, was settled on behalf of Spain, at St. Augustine, in 1565, ceded to Great Britain by Spain in 1763, and, after a colonial existence of over two centuries, was retroceded to Spain in 1784, and transferred to the United States by treaty of 1819 with Spain. It was created a Territory by act of March 30, 1822, and admitted as a State into the Union March 3, 1845. It embraces an area of 59,286 square miles, or 37,931,520 acres; larger than the States of North Carolina and New Jersey, or Maryland, Kentucky, and Vermont united, and in proportion to its area has a more extended coast line than any other political division of the Union.

Florida possesses attractions in the salubrity of its climate, equability of temperature, as well as the fertility of soil, and adaptability to the culture of such unusual variety of products, as shown by the luxuriant crops produced in almost every section, with a most remarkable growth of indigenous vegetation. It is healthy in most sections of the State, and especially so on the northeastern coast. For many years past this locality has been the resort of invalids from all parts of the country, particularly those affected with pulmonary diseases.

The maximum temperature in summer is near  $85^{\circ}$  Fahrenheit, and in winter ranging about  $45^{\circ}$ , rivaling the favorite climate of Italy. A comparison of the scientific observations of temperature made in the various parts of the world shows Florida to be isothermal with localities of much higher latitudes. The climate of the peninsula of Florida, extending through six degrees of latitude and as many of longitude, is of course somewhat varied; still there is not that marked change, either in the temperature, products, or seasons, which may be observed in other parts of the United States in higher latitudes. The winters of Florida, embracing about five months of the year, bear close resemblance to the Indian summers of Middle and Western States. Nearly all the rain-fall occurs during the productive season, while in the winter months there is comparatively little rain, the skies generally remaining clear and beautiful. The rainy season usually begins the first of July, and ends about the middle of September, during which time it is customary to have a shower of rain, of from thirty minutes to three hours, accompanied by thunder and lightning, every afternoon, leaving the residue of the day clear, and the nights cool and refreshing. Ice seldom forms, and south of latitude  $27^{\circ}$  frost is almost unknown. The summers of Florida, embracing seven months of the year, are longer than in the Northern States, and are much more agreeable, the heat being less oppressive than would be supposed by those acclimated to a northern latitude. According to reliable meteorological observations, it appears that the thermometer ranges higher, during the heated term, in New York, Boston, and the Canadas, than at St. Augustine, Tampa, or even Key West, the most southern city in the State, fifty miles southwest of Cape Sable. The days and nights during the summer season are nearly equal. The nights, even after the most sultry days, are invariably cool and invigorating.

The largest portion of Florida is embraced in the peninsula, which is three hundred and seventy-five miles in extent from north to south, with an average width not exceeding ninety miles. The surface of this peninsula is comparatively level, nowhere rising into mountains or hills, but along the coast it is low, gradually rising to an altitude not exceeding three hundred feet in the interior, while the whole surface is fanned by the Gulf winds on one side and the trade winds of the Atlantic on the

other. It is true there are in many parts of the State extensive tracts of swamp and overflows, large lagoons, and many low and wet localities; yet the soil is rich, producing luxuriant growth of indigenous vegetation. But from the best information at our command, based upon sanitary statistics, it appears that diseases are of milder type than in many other localities. It has been found that malarial diseases prevail to a greater or less extent in all new and unsettled regions, but that they disappear generally when a locality becomes improved.

Florida is noted for its many geographical and topographical peculiarities, and among the most prominent is the great number of large navigable rivers, the Appalachicola, Suwannee, St. Mary's, Indian, and St. John's, the latter stream being two miles wide for a distance of one hundred and fifty miles from its mouth. Throughout that distance the ebb and flow of the tide is perceptible. All these streams are navigable for a considerable distance, and afford extensive means for intercommunication. In fact, the whole surface of the State is well watered, having in this respect superior advantages for marine communication and commercial intercourse.

The State has an unusual extent of coast line, and a large number of excellent, spacious harbors, bays, and estuaries, features very essential to the development and support of foreign and domestic trade. The principal harbors on the Gulf coast are Appalachiola, St. Mark's, Cedar Keys, Tampa, Charlotte, and Key West, and on the Atlantic side St. Augustine, Fernandina, and Jacksonville, on the St. John's River.

The largest bays are on the Gulf coast. Prominent among these are Perdido, Pensacola, Escambia, Choctawhatchee, St. Andrew's, Alligator, Appalachee, Deadmen's, Horse Shoe, Wacasse, St. Joseph's, Tampa, Hillsboro, Sarasota, San Carlos, Costigo, Charlotte Harbor, Caximbus, Gallivans, Bahia, Ponce de Leon, White Water, and Florida Bays; while on the Atlantic, near the southern extremity of the peninsula, is Bay Biscayne. The coast has also a number of sounds, those on the Gulf being St. Rosa Sound—uniting Pensacola and Choctawhatchee Bays—St. George's Sound, and on the Atlantic coast, Barnes and St. Lucie's Sounds.

Not the least striking geographical feature of Florida is the everglades, which occupy a portion of the lower part of the peninsula. This extensive sheet of water has its rise in, and forms the outlet of, Lake Okechobee, extending to the Gulf of Mexico in a southwesterly direction. It is nearly ninety miles in length, and from thirty to fifty miles in width, comprising an estimated area of 3,600 square miles, or 2, 204,000 acres.

Florida abounds in beautiful springs, many of immense size, and strongly impregnated with sulphur and lime. Good water may be found in almost any section at the depth of from fifteen to twenty feet.

South of the mainland, and extending from Cape Florida, on the peninsula, a series of islands, sand-banks, reefs or keys, attached and belonging to the State of Florida, extend southwestward a distance of two hundred and twenty miles in a curve, terminating in a cluster of sand-banks and rocks known as Tortugas. These keys are separated from the mainland by Florida Bay, Bay Biscayne, Carp's and Barnes Sounds. South of this series of keys, with a navigable channel intervening, lies the Florida Reef, being a long, narrow coral reef, here constituting the left bank of the Gulf Stream. Key Largo is the longest and Key West the most important of these keys. On the latter the city of Key West is located, the largest city in the State, and an important naval station.

Oysters and turtle abound in the waters along the coast, as well as

fish of the finest species, including sheephead, trout, redfish, grouper, shad, and mullet, while the numerous lakes and rivers in the interior afford the finest fresh-water varieties. The fisheries of Florida are represented as an extensive and growing interest, at the present time giving employment to upward of a thousand persons. Sponges are found along the coast, and their collection and preservation for market are largely engaged in at Key West.

The flora of this region embraces a great number of species, including many found in the tropics as well as those indigenous to the temperate zone. Among the most important forest trees are the live, red, white, and water oaks, cedar, cherry, cypress, hickory, elm, pine, ash, gum, magnolia, birch, walnut, mahogany, and dogwood. The other varieties, found principally in the southern portion of the State and on the keys, are *lignum-vitæ*, boxwood, mastic, satin-wood, palmetto, and crabwood. Large quantities of live oak are annually sent to various foreign and domestic ports for ship-building and other purposes. The lumber produced is estimated at ten million dollars annually, and this interest is rapidly increasing. Florida is nearly all timbered; yellow and pitch pine form the basis. The undergrowth embraces an extensive variety of plants and vines, while flowers exist in the greatest profusion.

The general character of the soil is light, sandy loam, with intermixture of clay, lime, and organic matter. It is easily cultivated, yielding fair returns for the toils of the husbandman. It is undoubtedly true that there is a large amount of this soil incapable of producing for an extended period crops of the more exhaustive cereals; but aside from the everglades and swamps, there is but a very small proportion of worthless lands compared with many other sections of this country. Here are no mountain wastes, barren plains, nor deserts, and the land with this soil, while it is unfit for the culture of cotton, sugar-cane, corn, and tobacco, may be made available for the culture of different kinds of cereals, fruits, or vegetables. It has been asserted that the inferior class of lands is generally best adapted for the culture of Sisal hemp, one of the most remunerative crops produced in the State, and of the delicate and delicious semi-tropical and tropical fruits. No part of the United States is capable of furnishing more extensive variety of natural products and bringing them to as high a degree of perfection as the State of Florida. In the northern part a large proportion of the cereals, fruits, and vegetables indigenous to the north temperate zone may be raised, some in the greatest perfection; while the semi-tropical products find here a genial clime and soil. That part of the State south of latitude  $27^{\circ}$ , or the approximate line of frost, as well as many of the keys bordering that part of the coast, will successfully produce most of the tropical fruits of the West Indies. The culture of some of the tropical products here has not only proved successful but highly remunerative.

Hitherto Florida has been chiefly an agricultural region, with cotton the principal staple. Sea Island cotton has latterly been found to succeed in some parts of the peninsula equal to that of the islands on the coast of Georgia and South Carolina. Notwithstanding the State lies south of the great corn-growing belt, this staple is produced in all parts of Florida, and is here the most important article for food.

There is a large area well adapted to the culture of sugar-cane, and the climate, owing to the absence of late frosts, which occur in Louisiana, Texas, and other localities, is such that the cane reaches the highest perfection. Although this region seems to possess all the natural resources necessary to make sugar an important interest, little attention



has been given to this branch of industry beyond cultivation for home consumption.

The sweet potato finds here a genial soil and climate. It ranks next to corn with the masses as an article of food, yielding an abundant crop of from one to three hundred bushels per acre, and its culture for the northern markets is an increasing interest. The potato is also raised to some extent, and succeeds well when planted in winter. There is an extensive area of low land in Florida, well suited for raising rice. It produces well, the yield of rough rice being from forty to fifty bushels per acre. It is now principally cultivated for home consumption. The sandy soil along the coast is suitable for the culture of Cuba tobacco, and it is asserted the soil along the Atlantic coast, from Indian River to Caple Sable, embracing several million acres, is well adapted to the culture of coffee. Indigo was formerly the chief staple; it is a sure crop, but its culture is nearly abandoned. It is now found growing as an indigenous plant in localities where it had been cultivated over a century ago.

Sisal and New Zealand hemp have proved valuable crops in various localities. The castor bean grows luxuriantly, and in the southern part is perennial. Peanuts are extensively produced, yielding large and remunerative crops. Rye and oats are raised to some extent, but principally as forage crops. The culture of the tea plant has been agitated for a considerable period, but we have no reliable data showing the result. Every species of mulberry grows with the greatest luxuriance as far south as latitude 27°, and experiments made in silk culture have proved eminently satisfactory. It seems quite probable that this profitable branch of industry will in time prove an important interest to Florida, as it bids fair to do in California and other sections of the United States.

Nearly all the garden vegetables of this country grow luxuriantly here, including tomatoes, peas, beans, turnips, cabbages, beets, onions, squashes, radishes, peppers, lettuce, celery, parsley, rhubarb, egg plant, asparagus, melons and cucumbers, besides okra, cassava, and other plants and vegetables indigenous to tropical and semi-tropical regions. A very extensive variety of fruits, including most of those of the temperate zone, and many which mature only under the influence of a tropical sun, have been successfully produced in Florida. Among those which grow in luxuriance, maturing in perfection, may be named the peach, quince, apricot, nectarine, orange, lemon, pimento, lime, olive, citron, guava, pecan-nut, pomegranate, and the grape; while experiments of several years have fully demonstrated that the culture of many of the tropical fruits in the more favored portions of the State will not only prove successful, but highly remunerative, among which are the cocoanut, pine-apple, olive, Trinidad date, almond, and plantain. All the small fruits, including blackberries, dewberries, and hackberries, grow in great abundance and luxuriance, while the strawberry grows here to the greatest perfection.

No valuable deposits of important minerals have yet been found here; but ocher, amethyst, pit-coal, topaz, agate, carnelian, chalcodony, iron ore, limestone, silicified shells, and corals, exist in various parts of the State, though in limited quantities.

The various kinds of stock grow well in this region, with very little shelter or care. Hogs thrive in all sections of the State, ranging in the woods; and cattle fatten on the nutritious grasses. The cattle trade has become an important and lucrative interest. Sheep do well in this section. As a grazing region Florida ranks among the first in the Union.

In addition to the natural superior advantages of marine inter-communication which here exist, the facilities for railroad construction are rapidly advancing. In 1846 the first railroad was put into operation; in 1860 there were four hundred and two miles completed, and in 1865 there were four hundred and sixteen, while, on the first of January, 1869, there were four hundred and thirty-seven miles in operation, with a considerable extent projected and in process of construction.

Florida, although an old member of the republic, compared with some others, has many of the characteristics of being newly settled. Circumstances have tended to retard the development of this region, possessing so many natural advantages. It is gratifying to observe that under the new order of things the social and political condition of the State is highly encouraging. The new constitution, recently adopted, makes ample provision for the administration of justice to all, and the care and protection of every class of citizens, including the poor, deaf, and blind. Liberal and comprehensive means are provided for the education of the youth by means of free public schools, seminaries, and universities, supported by a general taxation of all real and personal property.

Tallahassee is the seat of State government, the United States surveyor general's office, and district land office. Key West is the largest city in the State. The other principal towns are Jacksonville, St. Mark's, Pensacola, Appalachicola, Quincy, Fernandina, Monticello, Cedar Keys, Gainesville, Lake City, St. Augustine, Pilatka, Marianna, and Osceola. The population of the State in 1830 was 34,370; in 1840, 54,447; in 1850, 87,445; in 1860, 140,424; and in 1867, 153,659, according to the State census. During the last year there were 75,270 acres disposed of under the homestead law. Since the date of the last report the surveying system has been again put into operation and the surveyor general's office reopened, there being 11,300,000 acres yet to be surveyed, including the everglades, swamps, and overflowed lands, and 17,349,167.32 acres of public land to be disposed of.

ARKANSAS was the twelfth State admitted under the federal Constitution, by act of June 15, 1836. It lies north of Louisiana, east of Texas and the Indian country, south of Missouri, and west of the St. Francis and Mississippi rivers, which separate it from Mississippi, Missouri, and Tennessee. Arkansas was carved out of the vast region acquired by purchase from France in 1803, and erected into a Territory by act of March 2, 1819. It comprises an area of 52,198 square miles, or 33,406,720 acres, greater than that of New York and Connecticut, or North Carolina and Delaware. It extends through nearly three and a half degrees of latitude, and occupies a most advantageous location in the temperate zone. The chemical characteristics of the soil, the chorography and vegetable products, are similar to those of the northern and southern States. The physical conformation of the country is very advantageous, largely enhancing the value of its geographical position.

In the southeast corner of the State the altitude of the surface does not exceed two hundred feet above tide-water. From this point the country rises to the northwest, and in the interior attains an altitude of two thousand feet on the extensive plateau, while the mountains reach an altitude of three thousand feet. Within the space of about two hundred and forty miles from north to south, in the limits of this State are to be found all the climatic and other characteristics of ten degrees of latitude. Thus, in the southern sections of Arkansas many varieties of semi-tropical fruits and plants grow successfully, and the great southern staples are produced in luxuriance. Approaching the northern sections, all these products give place to the great staples and products of the

northern States. So varied and extensive is the soil and its products, that with but few exceptions all the cereals, plants, and fruits known to American husbandmen may be produced within the limits of this State. The eastern part of Arkansas, bordering on the Mississippi, includes a broad alluvial belt from thirty to one hundred miles in width; the lands being low, level, and subject to inundation in many places. The soil is of the highest fertility and the surface is covered with dense forests of oaks, cypress, cottonwood, pecan, black walnut, and a great variety of other trees, intersected by extensive swamps, large lakes, and lagoons. By a thorough levee and drainage system it is believed that nearly the whole of this vast body of rich alluvial soil may be reclaimed and thereby rendered one of the finest agricultural regions in the great Mississippi valley.

The valley of the Arkansas River extends diagonally across the central portion of the State from northwest to southeast. This stream, the largest in the State, and next to the Missouri in importance as a tributary of the Mississippi, is navigable throughout the State, a distance of five hundred and ninety miles. The rich alluvions bordering this river from Fort Smith, near the western boundary, to Little Rock, two hundred and eighty-three miles, have an average width of about five miles, and from Little Rock to the confluence of the stream they average about twenty miles. Red River waters the extreme southwestern part of the State, which is a rich agricultural and grazing region. This rich valley is part of the great cotton-growing country of the southwest, and is also well adapted to the culture of sugar cane.

The Washita River waters the whole region south of the Arkansas, and between the latter stream and Red River. It rises in the western part of the State, flows first east and thence southwest, and is navigable for three hundred and fifty miles. The principal affluents of the Washita are the Moro, Saline, Little Missouri, Sabine, Bayou Boeuf, and Bayou Bartholomew. White River, which rises in the northwest, makes almost its entire course in Arkansas, and with its numerous tributaries waters the whole northern part of the State and that part of the eastern section between the valleys of the St. Francis and Arkansas rivers. The bottom lands along this stream and its tributaries are subject to overflow in some localities, but the soil is of great fertility. The alluvions on White River, equal in area to those on the Mississippi, in this State, are fully as valuable, and less liable to inundation.

The St. Francis River, which bathes part of the eastern boundary, rises in the highlands in the southeastern part of Missouri, and empties into the Mississippi ten miles north of Helena. It is almost four hundred and fifty miles long, and navigable at certain seasons for one hundred and fifty miles. Owing to recent depressions of the surface, large districts in this valley are covered by swamps and lagoons. The whole surface is abundantly well watered, and the State has nearly three thousand five hundred miles of navigable waters. In passing westward from the eastern border of Arkansas, the surface becomes more elevated, rising gradually. Near the center of the State the country becomes rolling and hilly, while the vast forests are interspersed with undulating prairies. These uplands, in their westward expansion, terminate in the Ozark and Masserne Mountains. The Ozark Range is first distinguished near Little Rock, north of the Arkansas River, extending in a northwesterly direction beyond the limits of the State, and sometimes attaining an altitude of two thousand feet, while the Masserne Mountains lie south of the Arkansas. The other important elevations are the Black Hills in the north, and the Washita Hills in the west.



The country north of the Ozark Range is a beautiful intermixture of hills, plains, prairie, and woodland. It is well watered, generally very fertile, and is the most thickly settled portion of the State. The lands on either side of the rich alluvions bordering the Arkansas consist of broad plateaus and small valleys scarcely less fertile, but not quite so well watered as the region north of the Ozark. It is a fine stock range, and will yield a great variety of cereals. Cotton also is successfully produced.

The country between the Arkansas and White rivers, east of the Ozark Mountains, is about fifty miles in width and one hundred in length, extending from northwest to southeast. It consists of prairies and "oak openings," and is of diluvial formation. The region between White and St. Francis rivers is partly alluvial and partly diluvial in its formation, and of great fertility. Some places are subject to overflow, while the residue is occupied by ridges and hills of no great elevation. By systematic drainage the whole area may be reclaimed and rendered valuable. The district south of the Wishita Mountains for a considerable distance is divided into a series of ridges and valleys, interspersed by numerous small streams rising in the mountains. These streams afford superior water-power for manufacturing purposes, while the lands are of great value as a stock-growing region. South of these hills is a large tract of country extending to the southern boundary of the State, and nearly across from east to west, varied in surface and soil, but generally undulating and interspersed with pine forests. Large portions of these lands are exceedingly fertile, particularly the black prairie soils. The alluvions on all these streams, which embrace a large area of the State, are of the highest fertility, and although extensive districts principally of this character of land are frequently subject to overflow at all seasons of the year, still there is but a very small area of the State which may not be reclaimed by a system of levees and drainage, and rendered susceptible of cultivation. The disposition of the arable land in Arkansas is eminently favorable to its development. The great variety of soils, the successions of hills and valleys, the prevalence of springs, creeks, and rivers, in every section, are circumstances which tend to produce a diffusion of advantages rendering every district in the State desirable for settlement.

The climate of Arkansas is temperate and generally healthy, but subject to sudden and frequent variations. In the valley of the Mississippi the annual rain-fall is about sixty inches, while in the western part of the State, bordering on the high plains stretching out to the mountains in the west, the rain-fall does not exceed fifty-five inches annually.

The general course of all the streams in the State is south and southwest, while the valleys are separated by mountains or high ranges of hills extending nearly east and west, thereby protecting them from the cold northern winds which sweep down from the great ranges of mountains on the west. The western part of the State also falls under the influence of the Gulf trade winds. All these causes unite in producing a temperature in the western valleys, particularly the valley of the Arkansas, lower in summer and several degrees higher in winter than on the same latitude east of the Mississippi.

From what has been said respecting the character of the country, its soils, surface, and climate, it is apparent that there is in Arkansas but a limited extent of barrens, deserts, or irreclaimable swamp land. And it will further appear, from the slight mention made of the prairies, that this region is properly a timber one. Arkansas abounds in valuable timber in all sections, and the revenues from it are of the first import-

ance, constituting the base of great wealth yet to be realized in the improvement of the State and the development of her other sources of wealth. The yellow-pine forests predominate, covering about one-fourth of the area of the State and interspersed with a very large variety of other valuable timber. The pine grows principally on the uplands, attains great size, and is abundant and valuable. Several varieties of oak abound, both on the rich alluvions and on the uplands. Some of these species attain large proportions, and are valuable for ship building and other mechanical purposes. In the southern part of the State there are extensive forests of white oak. Bald cypress, of immense size, and nearly as durable as red cedar, is found in great abundance on the rich alluvions and in the swamps and marshes; also, the tupelo gum, a valuable tree for many economical purposes. Cabinet woods occur in abundance, of which the black walnut, wild cherry, and maple, are the most valuable. Among the numerous hard woods growing in the State are the black locust, sassafras, red mulberry, and bois d'arc, or Osage orange. The latter species, used for hedging in the northern States, grows luxuriantly in the valley of the Red River often attaining four feet in diameter. Besides these there are the ash, hickory, maple, gum, beech, pecan, sycamore, elm, cottonwood, cedar, buttonwood, and hackberry. In addition to the foregoing, many species of trees are found here in abundance, valuable for ornament as shade trees or evergreens, among which may be enumerated the holly, willow, catlepe, China tree, box-elder, butternut, palmetto, dogwood, plum, hornbeam, ironwood, mockernut, juniper, and laurel. The undergrowth of the forests consists chiefly of oak, arrowwood, gum, sassafras, hazel, sumac, hickory, dogwood, and kinikinnik, while on the alluvions, in places, extensive canebrakes occur. Several varieties of wild fruits and berries grow abundantly, and among these are the pawpaw, persimmon, haw, whortleberry, wild plum, and chinquapin.

Very little has, as yet, been accomplished in the development of the mineral resources of Arkansas. The country north of the Ozark Mountains contains deposits of lead, zinc, manganese, and their associate metals, together with fine marble and other stones. The Ozark Mountains are composed of the "millstone grit formation," and, although not rich in metals, yield many mineral products of economical value. Coal, iron, and lead have, however, been found at intervals throughout its whole extent. South of these mountains, in the valley of the Arkansas, a vein of excellent coal exists; and near Fort Smith another, of good quality, five feet in thickness, has been discovered. Coal may be found in almost every county in the State, but not always of sufficient thickness or quality to be worth mining. The mountains south of the Arkansas River have attracted the most attention on account of mineral deposits, but, as yet, no mines have been developed to any great extent. Mining operations have been carried on in the western part of State, and near Little Rock. The minerals of the State are chiefly coal, iron, lead, zinc, manganese, gypsum, and salt. Gold is said to exist in White County. The State abounds in mineral springs, the most prominent of which are the Hot Springs, well known for their curative qualities. In the same locality sulphur and magnetic iron, and materials for hones and whetstones, exist in great variety. Crystal Valley abounds in beautiful rock crystals.

The great fertility of the soil is evinced by the luxuriant crops produced throughout the State. Cotton is the great staple, and forms the basis of agricultural wealth in Arkansas. It is cultivated in all sections—on the highlands and on the bottoms—and yields abundant and profitable crops. Other crops may be successfully raised and grow as

luxuriantly, but none have been so remunerative as the culture of cotton. Corn is produced in all soils, and in every section of Arkansas, yielding an abundant return, and rarely fails. Wheat is also cultivated in all parts of the State, and fine crops are produced, especially on the alluvions. All sections, except those localities given exclusively to cotton culture, have always produced sufficient wheat for home supply. Large crops have been produced upon lands formerly planted in cotton for a series of years; and at present a wheat crop forms part of the product of every well-regulated farm. The northwestern part of the State has taken the lead in the culture of this cereal. Tobacco is produced throughout the State in small quantities, for home supply. It gives a good yield, and may be made profitable. Oats and barley are cultivated in all sections of the State, yielding abundant crops. These, however, have heretofore been generally produced for domestic use, and not for market. Buckwheat yields abundantly, but is raised only for home demand. All kinds of root crops produced in the temperate zone succeed in this State. The native grasses of Arkansas include thirty-five varieties, which are unrivaled for luxuriance. The hay crop is an important product in the State, and is raised chiefly on the rich alluvions. A great variety of fruits may be successfully cultivated here, including species grown in the northern localities, as well as those which nearly approach the tropics. Apples, pears, peaches, plums, grapes, apricots, strawberries, and other small fruits, grow luxuriantly in all parts of the State, while the fig and some other species of semi-tropical fruits may also be found yielding well in favorable seasons, but occasionally requiring sheltered situations.

Congress has made liberal concessions to aid in the construction of railroads in Arkansas, and the extensive railroad system projected throughout the State is being pushed forward to completion. This, with the great system of water communication extending throughout its area, will afford facilities for transportation fully adequate to the wants of commerce.

This State affords to immigrants the inducements of a fine, salubrious climate, a prolific soil adapted to the culture of the most valuable agricultural products, with business and numerous other advantages incident to long-settled communities.

Little Rock, the capital of the State, situated on the right bank of Arkansas River, three hundred and eight miles from its confluence with the Mississippi, has an active trade, and a population of ten thousand. Arkansas Post is two hundred and thirty miles below the capital, on Arkansas River, and was laid out by the French in 1685. The other principal towns are Fayetteville, Fort Smith, Van Buren, Camden, Princeton, Helena, Carrolton, Fulton, Warren, Marion, Bolivar, Pine Bluff, Clarksville, Eldorado, and Washington.

Since the date of last report, 196,486 acres have been disposed of under the homestead law, leaving 11,377,943 acres yet to be disposed of in Arkansas.

District land offices are located at Little Rock, Clarksville, and Washington, which are prepared to entertain applications for the entry of public lands.

#### SECOND DIVISION—REGION OF CEREALS.

The public land States embraced in this division are Ohio, Indiana, Illinois, Michigan, and Wisconsin, on the east of the Mississippi River, and Missouri, Iowa, Minnesota, Kansas, Nebraska, and Dakota, on the



west. This vast region, embracing 751,736 square miles, or 481,106,908 acres, transcends the united area of the British Islands, France, Belgium, Holland, Denmark, Germany, Switzerland, and Italy, which is 749,372 square miles, with a population of nearly or quite 150,000,000. By the Mississippi River this grand division is separated into two subordinate ones, the eastern embracing an area of 239,558 square miles, or 153,317,120 acres, and the western 512,178 square miles, or 327,789,788 acres.

The eastern division is richly endowed with agricultural and mineral resources; its general surface is undulating, nowhere rising into mountains. It is generally heavily timbered, but intersected by large bodies of prairie. Its manufacturing capacities are in process of development and promise great results. Its water power has been but very partially called into requisition, while its immense forests and coal deposits, the latter covering a workable area of more than 70,000 square miles, afford the elements of artificial motive power beyond computation. The annual aggregate of cereal and root crops is now between six hundred and seven hundred millions of bushels, and other agricultural productions in proportion.

The products of coal, iron, copper, lead, salt, and other minerals, are annually increasing, and have already attained commanding aggregates. The population of the eastern portion at the present time is over 9,000,000, and the probability is that the coming decennial census will show at least 10,000,000. There yet remain in the States above enumerated east of the Mississippi 13,888,121 acres of public land undisposed of.

The western portion of this great cereal region embraces two tiers of States—the first, Missouri, Iowa, and Minnesota, bordering upon the Mississippi, has made great advances in civilization; the other States, Kansas and Nebraska, with the Territory of Dakota, are rapidly advancing in prosperity, extending northward to the British frontiers, have been more recently settled, but are receiving large and increasing immigration.

The first three of these States compare in general characteristics to the eastern section, but the others, lying in the declivity of the Rocky Mountains, present characteristics allying them in some points to the unique areas lying further west. The cereal productiveness along the Mississippi is not less marked than in the States of the same group to the eastward. But west of the Missouri River the agricultural character seems better suited to grazing than to crop-raising. The mineral resources of this western section, so far as developed, are very promising, while the manufacturing facilities are unsurpassed. The population is not less than 4,000,000, making about 13,000,000 for the whole grand division. There still remain of undisposed public lands 212,208,307 acres, making an entire area liable to private appropriation of 226,096,429 acres.

The climate of both these divisions is salubrious, but presents great varieties of temperature, moisture, &c., suited to different kinds of agricultural production.

The commercial facilities are favorable to the development of an enormous trade, which is beginning to exhibit some of its proportions.

OHIO, which formed part of the old "Northwestern Territory," was originally granted by royal charter to several of the ante-revolutionary colonial governments, and was by them, at different times after the disruption of colonial relations with Great Britain, ceded to the general government for the common benefit of the nation. By the celebrated ordinance of 1787 this splendid domain, exceeding in extent the French

empire, was organized under territorial government based upon the noblest principles. In 1802 the present State was erected in the eastern part of the Territory, embracing an area 200 by 195 miles, equal to 39,964 square miles, or 25,576,960 acres.

Within the limits of Ohio our public-land system was inaugurated under the ordinance of 1785, passed by the old Continental Congress. The earlier operations of the system in this State were singularly complicated by reservations in the claims of the States ceding the territory. Virginia reserved 4,204,800 acres between the Scioto and Little Miami rivers, nearly one-sixth of the area of the State, to satisfy the claims of the officers and soldiers of her Continental line. Connecticut retained 3,800,000 acres bordering upon Lake Erie, and surrendered her claims under her colonial charter to the zone between the 41st and 42d parallels westward. Of this reservation she retained only the title to the soil, the right of eminent domain being resigned to the general government. Some 500,000 acres of the western part of this reservation were granted, in 1792, to certain of her citizens, whose property had been burned by the raids of the British troops under Arnold and others during the revolutionary war. These latter donations are commonly known as "fire lands."

The United States military lands constitute a separate tract west of the first seven ranges of townships surveyed under the ordinance of March 20, 1785, to the Scioto River. These lands, embracing 2,500,000 acres, were appropriated by act of June 1, 1796, to satisfy certain claims of officers and soldiers of the revolutionary war. Land warrants granted by the United States for services in the revolutionary war were locatable in that district up to the 3d of July, 1832, when, by statute of that date, the vacant lands in the United States military district were laid open to sale, and the scrip principle in satisfying warrants was adopted.

The Ohio Company's purchase, lying along the Ohio River in the southeast corner of the State, originally embraced 1,500,000 acres, of which, however, less than 1,000,000 were paid for and patented. Symmes's purchase, including 311,682 acres, extends from the Ohio River northward between the Miami and Little Miami Rivers, with a breadth averaging twenty-seven miles. The two tracts last mentioned were subject to the school reservation of the 16th section in every township, and of section 29 for the support of the gospel. Several smaller tracts reserved for special purposes present anomalies in the earlier land operations which subsequent legislation has happily removed. The substitution of military bounty land warrants for the old methods of meeting the claims of our officers and soldiers has very greatly simplified this branch of the public service.

The public land operations in Ohio may be regarded as practically closed, only a very few isolated tracts remaining at the disposal of the general government.

Of the 25,576,960 acres in the whole State, the census of 1860 showed that 20,472,141 acres were included in farms representing a cash value of \$678,132,991; of this area 12,625,394 acres are unimproved lands. The census of 1850 presented the aggregate of 9,851,493 acres of improved and 8,146,000 acres of unimproved land; total, 17,997,493 acres, with a cash value of \$358,758,603. The comparison of these aggregates gives scope to very interesting reflections. The unimproved area of the State during ten years had shrunk from 7,579,467 acres to 5,104,819, or about one-third. The proportion of the entire area covered by agricultural improvements had increased from one-third to one-half, while the unimproved lands embraced in farms had decreased nearly 300,000 acres.

The entire average included in farms had increased 2,474,648, or 14 per cent., and the cash value of farms \$319,374,388, or nearly ninety per cent. The number of farms had increased from 143,807 to 179,889, or twenty-five per cent., while the population in the same time had increased only eighteen per cent. This gratifying increase in the proportion of persons interested in the soil would doubtless be still further enhanced by comparing the aggregates of urban proprietors for 1850 and 1860, which, from the rapid growth of towns in the State, must have very greatly increased. The average acreage of farms had declined from one hundred and twenty-five to one hundred and fourteen acres. The value of agricultural implements increased from \$12,750,585, in 1850, to \$17,538,832, in 1860, or nearly thirty-eight per cent. The value of live stock went up from \$44,121,741 to \$80,384,819, or eighty-two per cent.

These aggregates, according to the most reliable information, have very greatly increased during the current decade. The amount of improved lands in farms has specially been enhanced, at the expense, however, of the class of unimproved lands; for it is not supposable that an amount of wild, uninclosed land is found in the State, sufficient, after deducting the highways, towns, and watercourses, to swell the aggregate of inclosed but unimproved lands. The value of farm lands, according to tables compiled in 1867 in the Department of Agriculture, had increased from thirty to thirty-five per cent. in seven years. It is not at all out of the way to estimate the increase, in 1869, at fifty per cent. upon the returns of 1860. This would place the present value of farms at about \$1,000,000,000. The value of farm implements and machinery cannot be much less than \$25,000,000, while the value of live stock may reach \$140,000,000. The census reports of 1860 showed a considerable reduction in the average acreage of farms, thus enlarging the number of agricultural proprietors—a salutary tendency which there is reason to believe is at least equally operative during the current decade, the area now under cultivation, of all kinds, or devoted to grazing, being probably not less than 15,000,000 acres.

The soil of Ohio is of a high average fertility, generally free from rock, and easily worked. There is but a small proportion of the surface unavailable for production of some sort. The crops of 1860, 1866, and 1867, respectively, the first taken from the last United States census report, and the others from the statistical report of the Secretary of State for 1868, present the following aggregates: Wheat, 15,119,047, 5,824,747, and 13,350,726 bushels; maize 73,543,190, 80,336,320, and 63,875,064 bushels; rye, 683,686, 622,333, and 1,025,291 bushels; oats, 15,049,234, 21,856,564, and 18,534,222 bushels, barley, 1,663,868, 1,353,955, and 1,604,179 bushels; buckwheat, 2,370,660, 1,292,415, and 590,245 bushels; potatoes, 11,687,467, 6,725,577, and 5,744,530 bushels. The following aggregates are found in the reports for 1860 and 1867, respectively: Hay, 1,564,502, and 2,280,242 tons; tobacco, 25,092,581, and 10,790,575 pounds; flax, 882,423, and 10,523,876 pounds of fiber; butter, 48,543,162, and 34,883,445 pounds; cheese, 21,618,803 pounds; sugar, (maple and sorghum,) 3,345,508, and 2,753,314 pounds; molasses, 1,594,618 gallons; wool, 10,608,927, and 24,848,624 pounds. The orchard products in 1860 were valued at \$1,920,309; in 1867 they aggregated 9,723,892 bushels of apples, 1,359,604 of peaches, and 83,853 of pears, representing a value at least double that returned in 1860. In presenting these comparative statements it is but just to state that the crops of 1866 and 1867, the latest available in the preparation of this article, were in many respects below the average, and that the crops of 1868 and 1869 would exhibit a large increase upon the above figures. It has



been ascertained that the tobacco crop of 1868 amounted to 22,183,693 pounds, and that the sugar and molasses product of the same year embraced 5,712,587 pounds and 6,051,213 gallons respectively.

It is known that increased attention is now paid to the production of the more delicate fibers and fruits. The increments in the flax, wool, and orchard products are especially remarkable. The improvement in the quality of this production has more than kept pace with its enlargement in quantity. In mining enterprise an equal enlargement is observable. The production of mineral coal expanded from 34,290,359 bushels, or 1,368,814 tons, in 1865, to 42,130,021 bushels, or 1,685,201 tons, in 1866, and to 46,703,820 bushels, or 1,868,153 tons, in 1867. Of pig iron 167,591 tons were made in 1867, being an increase of 85,801, or more than one hundred per cent., over the product of the previous year. The salt product of 1867 was over 2,000,000 bushels. The increase in these branches of production indicates a diversification of industry and the development of higher civilization. The extension of manufacturing enterprise is absorbing a portion of the capital and labor that otherwise would be devoted to agriculture. The census of 1860 presented 11,123 establishments, with a capital of \$57,295,303, employing 65,749 male and 9,853 female operatives, paying them \$22,302,989 per annum, and producing articles valued at \$121,691,148 per annum. It is to be regretted that the admirable statistical reports of the Secretary of State had not been extended to embrace the manufacturing as well as the agricultural and mining interests of the State. There is ample reason to believe that the progress of Ohio in that higher element of industrial activity has been much greater than its advance in the production of raw material.

The forest trees of the State embrace all the varieties of oak, maple, hickory, poplar, sycamore, pawpaw, dogwood, beech, &c. The fuel-producing capacities of the State are further enhanced by the existence of at least 12,000 square miles of workable coal area, about double that of England, whose steam power, according to the London Times, equals double the muscular force of the entire human race. This coal area occupies the eastern and southeastern portion of the State, among the western foot-hills proper of the Alleghany Mountain system. To the northwest of the coal measures is found a very narrow belt of the underlying coal conglomerate, forming the rim of the coal basin. To this succeed the Chemung and Portage groups, and other formations in the downward series of the devonian and silurian systems.

The climate of the south part of the State is mild, the winters seldom admitting of snow fall to the extent of a protracted sleighing season.

Toward the north, and especially on the declivity of Lake Erie, the cold increases to an equality with the same parallels in the eastern States. This climate, not sufficiently warm to enervate, presents to a fertile soil all the stimulus necessary to splendid production. In salubrity Ohio will compare with any part of the Union. There are no mountain ranges in the State, but the hills on the crest line, near the center, rise to an elevation of at least one thousand feet above sea level. The southern slope of the State is longer than the northern, as is evidenced by the greater length of the streams emptying into the Ohio River. The landscape presents a great variety of tranquil beauty. The great agricultural sections of Ohio are the Miami and Scioto Valleys, in which nearly two-thirds of the corn crops of the State are produced.

Meteorological observations have been kept up with considerable regularity in about twenty different localities in the State for a number of years. From these it appears that the north winds of Lake Erie reduce

the mean temperature of the middle of the State almost to an equality with the northern boundary. Kelly's Island is the sixteenth of a degree Fahrenheit warmer in winter than Urbana, one and a half degree southward in latitude, while the summer temperature is but the twenty-fourth of a degree Fahrenheit colder. Cincinnati, one degree further south, presents an annual mean temperature nearly five degrees warmer than either. The rain-fall, according to reliable observations in at least twelve localities, during 1867, was forty-three inches, being about three inches greater than the average of a number of years.

In all the physical elements of comfort Ohio is amply endowed. The results of three-quarters of a century of progress in material resources may be seen in the statistics of real estate and internal improvements. The total value of taxable property returned to the auditor of state for the year 1868 was \$1,143,461,386, yet it is estimated that the personal and real estate of Ohio, at its present full value, cannot be less than \$2,500,000,000. Of the moneyed institutions the returns of 1868 show one hundred and thirty-five national and one hundred and eighteen other banks, with a capital of \$27,313,720; eighty-two Ohio joint-stock and mutual fire insurance companies, with a paid-up capital of \$4,604,853; sixty-six fire insurance companies of other American and foreign states doing business in this State upon an aggregate capital of \$39,835,756; besides a large number of native and foreign life insurance companies.

The natural internal communications embrace over eight hundred miles of river and lake navigation, including the slack-water improvements of the Muskingum River. The artificial highways embrace three hundred and sixty-one turnpikes and plank roads, with an aggregate length of 3,251 miles, besides sixty-seven thousand miles of common roads, and nearly one thousand miles of canal, including two complete lines from the Ohio River to Lake Erie. The railroad system embraces thirty-five different railroads, with a total length, including main lines and branches, of 3,255 miles, with a capital stock of \$103,346,607, besides a funded debt for construction and equipment of \$79,996,542, representing a capital actively invested within the State of \$183,343,149 89. The gross annual earnings are \$28,788,827 28; the expenditures \$28,862,875 27; passengers carried, 9,436,416; and the tons of freight transported during 1868, 11,813,535, which, at an average value of one hundred dollars per ton, would amount to over \$1,000,000,000. The internal commerce of the State may be safely estimated at twice that amount.

The growth of towns and cities in Ohio is remarkable, even amid the other wondrous developments of her prosperity. Some forty-eight of the more prominent towns exhibit rates of increase since 1860 varying from twenty to two hundred per cent. Of this number, Cincinnati, in 1868, had 285,000 inhabitants; Cleveland, 85,000; Dayton and Columbus, 32,000; Toledo, 30,000; Zanesville, Springfield, Hamilton, Chillicothe, Steubenville, Sandusky, Portsmouth, and Akron, from 10,000 to 15,000.

This mass of material prosperity is directed by moral and intellectual forces of immense efficiency, which are partly revealed by the educational and religious establishments. The report of the school commissioner for 1868 shows an aggregate of 1,019,192 enumerated youth, of all colors, for whose education provision was made by law at the expense of the State treasury, being an increase of 23,942 or 2.40 per cent. over the aggregate of the previous year. The amount expended for teachers' salaries during the year was \$3,387,901, an increase of \$192,673. The total number of school-houses was 11,406, valued at \$10,330,097. The total number of volumes in libraries was



286,684. The total enrollment of pupils was 731,772, being an increase of 27,005, or about four per cent. over the previous year. These schools are graded upon an admirable system, and are managed with great skill and efficiency. Their influence in elevating the tone of popular intelligence is incalculable.

Besides these public schools, the educational system of the State embraces four hundred and eighty private academies and high schools, with six hundred and eighty-three teachers and pupils; and twenty universities and colleges, with one hundred and twenty-four professors, fifty-three tutors, and 5,054 students. The latter have an aggregate endowment of \$1,526,073, and buildings, grounds, and apparatus, valued at \$1,324,909. Of the academies and high schools a large number are dedicated to the higher branches of female education.

The census of 1860 showed 5,210 churches in the State, valued at \$12,988,312, and affording accommodations to 1,996,678 hearers, nearly the whole of the population at that time. There is no doubt that the church accommodations have fully kept pace with the population during the passing decade, while the character of church architecture has been very greatly raised.

The population of Ohio in 1860 was 2,339,511; in 1868, as estimated by the State authorities, it was 2,800,000. By the ninth census it will not be less than three millions, if, indeed, it is not already up to that number.

INDIANA, the second State erected out of the old Northwest Territory, was admitted into the Union in 1816. It lies to the west of Ohio, extending two hundred and seventy-five miles from north to south, and one hundred and thirty-five miles from east to west, with an area of 33,809 square miles, or 21,637,760 acres. Of this surface, in 1860, 16,388,292 acres were inclosed in farms valued at \$356,712,175, embracing 8,242,183 acres of improved and 8,146,109 of unimproved lands. Compared with the census of 1850, the total surface included in farms exhibits an increase of 3,594,687 acres, or nearly thirty per cent., the improved lands absorbing of this extent 3,196,140 acres, being an increase of sixty-three per cent. in ten years. The cash value of farms had been during the same period enhanced \$220,327,002, or nearly one hundred and sixty per cent. The number of farms in the State had increased from 93,896 in 1850, to 131,826 in 1860, while during the same period the average area of farms had decreased from one hundred and thirty-six acres to one hundred and twenty-four. The value of farming implements and machinery had risen from \$6,704,444 to \$10,457,897.

The public land system in Indiana, in which State the United States has nearly disposed of its proprietary interest, exhibits very few of those anomalies which complicated its early operations in Ohio, and consequently gave much less ground for litigation, which grew out of the conflicting land titles of her sister State. The public land in the State has been almost entirely appropriated by private owners, under the different laws of Congress, only 1,920.23 acres in small detached tracts remaining undisposed of. The settlement of Indiana seems to have been attended with few of those circumstances which gave notoriety to the earlier settlement of Ohio or Illinois. Timothy Flint, in his "History and Geography of the Mississippi Valley," ascribes this to the fact that the earlier settlers of Indiana were generally young men with no capital or families, who required no large trains of wagons and domestic animals to transport their small proportion of worldly goods. The comparatively smooth working of the public land system deprived the State also of several of those exciting questions which have constituted



controlling points of interest in the early history of neighboring States. Yet the growth of Indiana was rapid and steady.

The face of the country presents a general resemblance to Ohio. A belt of hills and bluffs extends in varying distance back from the Ohio River. A low ridge extends transversely across the State to the northwest, giving rise to rapids in the Ohio, White, and Wabash Rivers. The crest line is near the northern part of the State, as is shown in the greater length of the Ohio tributaries. On the border of Lake Michigan is a range of sandhills, back of which rise heavy pine forests. The central and northern portions present an agreeable variety of prairie and heavy timbered country, upon which are found all the leading species of oak, poplar, ash, walnut, hickory, elm, cherry, and maple. The region bordering on the Ohio has been largely denuded of its timber, originally very abundant, to supply fuel and lumber to the trade of the river; a deficiency which, under the pressure of necessity, will doubtless be supplied by tree-planting.

This portion of the State, including the Ohio and Whitewater Valleys, about 5,500 square miles in extent, is a limestone region, two-thirds of which is excellent farming land, the residue being fit only for grazing. White River Valley, embracing some 9,000 square miles, extends centrally from the Wabash River to the Ohio frontier. It is uniformly level and mostly heavily timbered. The soil is of excellent character, free from rock. The Wabash Valley, covering 12,000 square miles, and interlocking with the White River Valley, extends northeasterly and northwardly to include the northern portion. About 2,000 square miles of the Maumee Valley of Ohio lie in this State. These valleys embrace immense bodies of fertile land, with admirable water-power in many localities.

The agriculture of Indiana, under a prosperous movement, has developed magnificent results. The value of live stock increased from 1850 to 1860 from \$22,478,555 to \$41,855,539, or nearly ninety per cent., the different aggregates of horses, asses, mules, cattle, sheep, and swine, showing increments varying from fifty to three hundred per cent. The leading crops for the years 1850, 1860, and 1867, the first two being taken from the census reports, and the latter from the agricultural tables at Washington, are represented by the following aggregates: wheat, 6,214,458, 16,848,267, and 16,861,000 bushels; rye, 78,792, 463,495, and 396,000 bushels; corn, 52,964,363, 71,588,910, and 80,757,000 bushels; oats, 5,655,014, 5,317,831, and 11,174,000 bushels; barley, 45,483, 382,245, and 346,000 bushels; potatoes, 2,083,377, 3,866,647, and 7,238,000 bushels; tobacco, 1,044,620, 7,993,378, and 10,769,000 pounds; hay, 403,230, 622,426, and 2,219,000 tons. The wool products of 1850 and 1860, respectively, were 2,610,287 and 2,552,318 pounds; orchard products, \$324,940 and \$1,258,942; wine, 14,055 and 102,895 gallons; market garden products, \$72,864 and \$387,027; butter, 12,881,535 and 18,306,651 pounds; flax, 584,469 and 97,119 pounds; sugar, 2,921,192 and 1,541,761 pounds; molasses, 180,325 and 1,173,957 gallons. It is but just to observe that the returns of the crops of 1867 were meager, and that in many of the above aggregates the crops of 1868 and 1869 exhibit a very great advance. The value of slaughtered animals increased from \$6,567,935 in 1850 to \$9,824,204 in 1860.

The census reports of 1850 and 1860, in regard to the manufactures of Indiana, give the following aggregates: number of establishments, 4,392 and 5,323; capital invested, \$7,750,402 and \$18,451,121; raw material consumed, \$10,369,700 and \$27,142,597; hands employed, 14,440 and 21,296; annual cost of labor, \$3,728,844 and \$6,318,335; value of annual product, \$18,725,423 and \$42,803,469. These figures indicate a rapid

and enormous development of manufacturing industry. The coming decennial census will doubtless exhibit a still greater expansion of this branch of industrial enterprise. The immense water-power has been brought into requisition, and the exploration of coal deposits has induced the establishment of steam machinery on a large scale. The coal measures are accessible to mining enterprise in an area of 8,000 square miles. The coals of Indiana are all bituminous, but are divided into fat and dry varieties, the former running into a cake in burning, the latter retaining its hardness, burning from the outside till all is consumed. The latter is found in the lowest seam of Indiana coal. It is regularly stratified, and easily mined in regular blocks. It is especially suited to the manufacture of iron, being pronounced equal to the best charcoal. It is found along the eastern rim of the coal field from Ohio River to the Illinois line, in seams from three to five feet thick. Its depth varies from surface outcrop to two hundred feet, over a belt of country from fifteen to twenty miles wide, and one hundred and fifty miles long.

Extensive and valuable deposits of iron ore are found in close proximity to the coal mines, being generally associated with the lower members of the coal-measure groups. These ores are generally limonites, the kidney or furnace ores of the furnace men. They are easily smelted, run freely, and yield from forty to fifty per cent. of metal. In the northern counties are found large beds of bog ore, covered by several feet of muck or peat. This ore, containing thirty or forty per cent. of iron, is easily reduced, and is free from sulphur. These elements of manufacturing enterprise, with the proximity of southern cotton fields, point to a future of great activity and to massive accumulations of wealth.

The natural facilities for communication, consisting of several hundred miles of lake and river navigation, have been supplemented by an extensive system of common and turnpike roads, canals, and railways. The canals of Indiana present an aggregate length of four hundred and fifty miles. The railroad system has grown to gigantic proportions. At the close of 1868 there were in operation in the State some 2,600 miles of road, being one mile to every thirteen square miles of territory, and to six hundred and ninety-three of the population. The railroads of this State date back only to 1845, during which year some thirty miles were completed. The system has grown, however, in an accelerated ratio. It is to be regretted that no system of statistical information has yet been ordained by which the character and results of railroad operations might with certainty be understood. It is estimated, however that the present annual freight carriage of the Indiana roads amounts to 7,000,000 tons, representing a commercial value of \$700,000,000. The internal commerce of Indiana is probably double the last-mentioned aggregate.

The results of a progress of little more than half a century are summed up in a true gold value of real and personal estate but little short of \$1,500,000,000. The heavy debt incurred for internal improvements in the early history of the State is in rapid process of liquidation, the annual reduction increasing with the development of her resources.

From the report of the Superintendent of Public Instruction for the year 1867, it is shown that provision was made by law for the gratuitous education in the public schools of 559,778 pupils, being an increase of 7,534 over the enumeration of the previous year. Of this number 390,714 actually attended the primary, and 12,098 the high schools. These schools were taught by 5,330 male and 4,163 female teachers, at a total cost for tuition of \$1,020,440, being an increase of \$106,546 over the

cost of the previous year. The total number of school-houses reported was 8,231, valued at \$4,515,734; volumes in the school libraries 265,388. Besides these public schools there were 2,026 private schools, with an attendance of 49,322 pupils. Indiana has a number of universities and colleges of a high grade of literary excellence, of which it is regretted that no statistics were available for the preparation of this report.

The number of incorporated cities in Indiana in 1866 was thirty-two, and of incorporated towns ninety-five. Of the former the largest is Indianapolis, the State capital, with a population of over 50,000. It is one of the prominent railroad centers of the West, the seat of an extensive commercial and manufacturing system. New Albany, on the Ohio River, three miles below the falls, with 20,000 inhabitants, is remarkable for its rapid growth and active trade. It is the seat of an extensive steamboat-building interest, and the most commercial point in the State. Evansville, Fort Wayne, Lafayette, Terre Haute, Madison, and Richmond, are prominent cities, varying from 12,000 to 18,000 inhabitants. The urban population of Indiana has increased in a much greater ratio than the rural. The population of Indiana in 1860 was 1,350,428, showing an increase during the previous ten years of 362,012, or 37 per cent. At the close of the present decade it is estimated that the population will number at least 1,800,000.

ILLINOIS, the third of the States carved out of the old Northwestern Territory, was admitted to the Union in 1818. Its extreme length from north to south is 380 miles, with an average breadth of 140 miles, expanding at some points to 200 miles. Its area in square miles is 55,410, equal to 35,462,400 acres. Of this extent, in 1860, 20,911,987 acres were included in farms; 13,096,374 acres were improved, and 7,815,615 acres were unimproved. These statistics, as compared with the census of 1850, show an increase of lands inclosed in farms of 8,874,575 acres, or seventy-three per cent.; of improved lands of 8,056,829 or nearly one hundred and sixty per cent. The cash value of these farms in 1860 was \$408,944,033, an increase in ten years of \$312,810,743, or three hundred and twenty-five per cent. The value of agricultural implements and machinery during the same time increased from \$6,405,561 to \$17,235,472, or one hundred and seventy per cent. The number of farms in 1860 was 143,310, an increase of 67,102, or over ninety per cent.; the average acreage of these farms had meanwhile declined from 158 to 146 acres. During the passing decade this subdivision of lauded property has been very considerably accelerated.

Illinois was first settled by the French, in whose possession it remained for eighty years, from the settlement of La Salle to the treaty of Paris, in 1763, by which all territory claimed as Louisiana, east of the Mississippi, was surrendered to the English. The names of prominent French settlers are still borne by different localities in the State, and a large Gallic element of population still subsists. Virginia claimed this territory not only in virtue of her original charter from the King of Great Britain, but also by right of conquest. The expedition of General George Rogers Clarke, by which the British authority was finally subverted, was organized and prosecuted under authority of the State government of Virginia. This claim, however, including both the eminent domain and the proprietary interest in the soil, was ceded to the United States on the 23d of April, 1784, other States about the same time surrendering their claims to portions of the "Northwest Territory." After the erection of the State of Ohio, Illinois formed part of the Territory of Indiana. In 1809 it was constituted a separate political division under the name of Illinois, with boundaries extending northward to the national frontier,



which status it maintained until its admission as a State, with reduced limits, in 1818.

The public-land system in this State has been more complicated than in Indiana, with local interests growing out of the early settlement of the country by the French, and consequent inception of prior rights to the soil under foreign law. But the landed interests of the State have not been productive of such litigation as in Ohio. All the questions of private rights growing out of the public-land operations have been happily settled by the transfer of almost the entire interest held by the government in the soil to private owners. There yet remain for disposal but a few small scattered tracts.

The surface of Illinois may be regarded as a table land, elevated from three hundred and fifty to eight hundred feet above sea level, with a general inclination toward the Ohio and Mississippi Rivers, to which nearly all its streams are tributary. No mountains or high hills are found, the undulations being a gentle slope. The sobriquet "Prairie State" indicates the prevailing character of the surface. The prairies are sometimes small, and sometimes aggregated in large bodies of land interspersed with groups and belts of timber. The stoppage of annual fires has developed a natural growth of trees, to which systematic tree planting has already added a considerable incipient forest area. The prairie scenery of Illinois possesses a unique and enchanting beauty, from the graceful undulations of the surface, and the wonderful variety and richness of natural flowers and shrubbery. The soil of the State, of diluvial origin, is unsurpassed in fertility, and its productive power is admirably brought out by a genial and salubrious climate. It is especially remarkable in the southern part of the State for its enormous deposit of black vegetable mold. The value of live stock in 1860 was \$72,501,225, being an increase of two hundred per cent. in ten years. The aggregates of horses, asses, mules, cattle, and hogs, show increments ranging from fifty to over one hundred per cent. Sheep husbandry, however, seems to have suffered some decline. The leading crops of the years 1850, 1860, and 1867, respectively, as shown in the census reports, and in the tables of the Agricultural Department at Washington, give the following aggregates: Wheat, 6,214,458, 23,837,023, and 28,000,000 bushels; corn, 52,964,363, 115,174,777, and 109,091,000 bushels; rye, 78,792, 951,281, and 639,000 bushels; oats, 10,087,241, 15,220,029, and 32,158,000 bushels; barley, 110,795, 1,036,338, and 996,000 bushels; buckwheat, 184,504, 396,989, and 248,000 bushels; potatoes, 2,514,861, 5,540,390, and 3,673,000 bushels; tobacco, 841,394, 6,885,262, and 15,792,000 pounds; hay, 601,952, 1,774,554, and 2,667,000 tons. The wool clip of 1850 and 1860, respectively, were 2,150,113 and 1,989,567 pounds. The products of butter, 12,256,543 and 28,052,551 pounds; cheese, 1,278,275 and 1,848,557 pounds; sugar, 248,904 and 134,195 pounds; molasses, 8,354 and 826,637 gallons; value of orchard products, \$446,449 and \$387,027; wine, 2,997 and 50,690 gallons. Cotton has been to some extent raised in Southern Illinois, and efforts have been made to introduce the culture of tea. It should be observed, as in the articles on Ohio and Indiana, that the crop of 1867, in many items, was a comparative failure, and that the crops of 1868 and 1869, not accessible for the preparation of this article, would show figures more truly representative of the agricultural powers of these States. The later estimates are mostly confined to the leading staples, and take but small account of a great variety and delicacy of the higher elements of agricultural production. The census of 1870 will alone reveal the wonderful progress of the northwestern States in these respects during the passing decade.

The climate of Illinois, extending through five degrees of latitude, necessarily presents a great variety of temperature. It is milder than in the same parallels on the Atlantic coast, but subject to greater vicissitudes. The extent of prairie surface has had an important influence upon the rain-fall, which is already affected perceptibly in some localities by the planting of trees, and by their spontaneous growth where they are protected from annual fires.

The mineral deposits of Illinois are exceedingly valuable. From the great diffusion of rocks of the carboniferous group this State has been described as one vast coal field, but subsequent study and information have corrected these impressions. The northern limit of the carboniferous outcrop is a line crossing the State, in a general southeast direction, from the mouth of Rock River, including a portion of Indiana, and crossing the Ohio River into Kentucky. Some outlying coal beds, however, are found to the northeast of this line. The coals of Illinois are all bituminous, some being of the cannel variety, and rich in carbon. They are conveniently located in beds easily accessible to the Ohio and Mississippi Rivers, and to the railroad lines. The iron ores found among the coal-measure strata are of no great value. In the silurian limestones, overlapping the northwest corner of the State, are found extensive deposits of lead, constituting a portion of the great Mississippi lead region extending over the coterminous parts of Illinois, Iowa, and Wisconsin.

These mineral deposits will furnish the motive power of a great manufacturing system, which has been but partially organized hitherto. The census reports of 1850 and 1860 give the following aggregate of this branch of industrial activity: Number of establishments 3,162 and 4,268, an increase in ten years of thirty-five per cent.; capital invested, \$7,750,402 and \$27,548,563, an increase of two hundred and fifty-five per cent.; cost of raw material consumed, \$8,959,327 and \$35,558,782, an increase of nearly three hundred per cent.; hands employed, 11,559 and 22,968, an increase of one hundred per cent.; annual cost of labor, \$3,204,336 and \$7,637,921, an increase of one hundred and forty per cent.; value of annual product, \$16,534,272 and \$57,580,886, an increase of two hundred per cent. It will be seen from the above figures that manufacturing industry has enhanced its benefits both to the capitalists and to the laborer; while the number of employés shows an increase of one hundred per cent., their compensation one hundred and forty per cent., and the value of productions two hundred per cent. These increments, however, will be very greatly exceeded by those of the current decade. The capital invested in manufactures in Chicago alone, in 1868, was over \$60,000,000, more than double that of the whole State in 1860.

The natural communications of Illinois embrace a river and lake navigation of nearly or quite two thousand miles. The construction of canals has not been prosecuted to the extent of its sister States of the northwest, for the reason that the great development of its commercial activity has taken place since the time when the railway has greatly superseded the canal in the public estimation. The railroads of Illinois are second in extent only to those of Pennsylvania, having a mileage, in 1868, of 3,440, or one mile of road to every sixteen square miles, and to every seven hundred and twelve inhabitants. Chicago is the most important railroad center in the interior of the continent. It is a question whether its important connections do not give it a greater commercial power than are derived by any other city in the Union from the same source. Twelve grand trunk lines radiate from this point, with

an aggregate length of road under single company organizations, and not embracing other connecting lines, of 3,450 miles. During each twenty-four hours about two hundred and fifty trains arrive, and as many depart, from the various depots of the city. Other points in the State have become prominent railroad centers, and the railway system promises a still greater expansion.

The commerce of Illinois has advanced with magnificent strides during the past ten years. The railroad tonnage alone must have been at least ten millions, worth \$1,000,000,000. The commerce of Chicago may be estimated from the annual receipt and shipment of 1,500,000,000 feet of lumber, 220,000,000 lath, 1,000,000,000 shingles, 3,000,000 hogs, 600,000 cattle, 200,000,000 pounds of pork, 30,000,000 pounds of lard, 8,000,000 pounds of tallow, 100,000,000 pounds cut meat, 60,000,000 pounds hides, 25,000,000 pounds wool, 15,000,000 pounds lead, 100,000,000 bushels grain, 100,000 barrels beef, 3,500,000 barrels flour. The city contains eighteen elevator warehouses, with an aggregate capacity of storage of 10,680,000 bushels of grain. The commercial activity at Chicago has built up quite a number of secondary commercial depots at different points in the State, in which to gather the elements of the splendid tide of trade movement at the great metropolis. This commercial system, based on a gigantic system of productions of both raw and manufactured material, promises a still greater enlargement in the future. Illinois at the present time holds an imperial relation to the West, aspiring to the first rank in the trade and industry of the whole country.

The moral and intellectual forces of this young State are on a scale commensurate with its vast physical resources and its enormous social activity. The report of the Superintendent of Public Instruction shows that in 1866 \$4,359,238 were expended for gratuitous tuition of 614,659 pupils in actual attendance at ten thousand schools. Besides this aggregate, over twenty thousand pupils were instructed in private schools. A large number of colleges and universities, with professional schools, give ample facilities for acquiring the highest elements of education. The religious establishments, working with wonderful power upon the people, vindicate the principle of voluntary support, and supply conservative influences of untold efficiency upon the welfare of the general community.

MICHIGAN is one of the five States erected out of the "Northwest Territory," ceded to the United States by the State of Virginia by act of the general assembly, passed at the session of October, 1783. It was created a separate Territory by act of Congress approved January 11, 1805, and admitted to the Union by the statute of June 15, 1836.

The State is divided, by the lake of the same name, into two large peninsulas, the most northern of which, lying between Lakes Superior and Michigan, is 316 miles long and from 36 to 120 broad; and the southern, included between Lakes Michigan, Huron, St. Clair, and Erie, is 416 miles long and from 50 to 300 wide. Its area is 56,451 square miles, or 36,128,640 acres. Of this surface, in 1860, 7,030,834 acres were included in farms, being an increase in ten years of 1,547,186 acres, or eighty per cent. It will be seen from the above figures that less than one-fifth of the State was then occupied by farms, and less than one-tenth had been improved and brought under cultivation. The cash value of farms was \$160,836,495, an increment of \$108,964,049, or two hundred per cent. The value of farm implements and machinery advanced during the same time from \$2,891,371 to \$5,819,832, or over one hundred per cent.

The northern peninsula is more bold and picturesque, and the south-



ern richer in agricultural resources. The eastern portion of the former rises gradually from the lake shore into an elevated plateau and swells westwardly into hills, which finally enlarge into the Porcupine Mountains, the dividing ridge between Lakes Superior and Michigan, the highest peaks attaining an altitude of eighteen hundred or two thousand feet. The shores of Lake Superior are studded with beautiful scenery, prominent among which are the "Pictured Rocks," masses of parti-colored sand-stone, sixty miles from Sault St. Marie, worn by the waves into fantastic shapes resembling ruined castles and temples. The agricultural character of this region has not yet been determined, as it is but sparsely settled. The southern peninsula is more level and homelike. It is agreeably diversified by beautiful prairie lawns, commonly called "oak openings." The soil is excellent, especially in the middle and south of the lower peninsula, being generally free from encumbering rocks, and composed of a deep, dark, rich, sandy loam. Both peninsulas contain extensive tracts of heavy timber, furnishing large quantities of lumber and fuel for domestic use and for exportation, the trees embracing white pine, spruce, hemlock, birch, every variety of oak, walnut, hickory, maple, and ash. Many varieties suitable for fine cabinet work are found within the limits of the State. The pineries of Michigan are noted as the source of excellent building materials, supplying a large portion of the northwest.

The climate is less severe than in the same parallels in the neighboring British provinces, being equalized and ameliorated by the immense bodies of fresh water on the border. The average annual temperature is admirably suited to wheat in all parts of the State, while in the southern part even good crops of maize are raised, as well as vast quantities of grapes, peaches, and the more delicate fruits.

The value of live stock in 1860 was \$23,714,777, being an increase in ten years of \$15,716,043, or nearly two hundred per cent; the aggregates of horses, asses, mules, cattle, sheep, and hogs, show increments of from two to five fold. In 1867 the value of live stock was \$56,000,000, and in 1868 \$60,000,000. The crops of 1850 and 1860 show the following aggregates, respectively, viz: wheat, 4,925,889 and 8,336,368 bushels; rye, 105,871 and 514,129 bushels; corn, 5,641,420 and 12,444,676 bushels; oats, 2,866,056 and 4,036,080 bushels; barley, 75,249 and 307,868 bushels; buckwheat, 472,917 and 529,916 bushels; potatoes, 2,359,897 and 5,261,245 bushels; hay, 404,934 and 768,256 tons; tobacco, 1,245 and 121,099 pounds; butter, 7,065,878 and 15,503,482 pounds; cheese, 1,011,492 and 1,641,897 pounds; orchard products \$132,650 and \$1,122,074; market garden products, \$14,738 and \$145,883; wine, 1,654 and 14,427 gallons; sugar, 2,839,794 and 4,051,852 pounds; molasses, 165,951 and 19,823 gallons. Of later crops the wheat yield of 1866 was 14,740,639 bushels, valued at \$37,588,630, the crops of 1867 and 1868 being much larger. The other crops of 1866 were as follows: corn, 16,118,680 bushels, valued at \$13,217, 318; hay, 1,218,959 tons, worth about \$16,800,000; potatoes, 5,037,298 bushels, worth over \$2,800,000. A large increase is also observable in the production of rye, oats, barley, buckwheat, and tobacco. Wool growing is one of the most important agricultural interest of the State, both climate and rich grazing capacities of the soil being favorable. The wool clip increased from 2,043,283 pounds in 1850, to 3,960,888 pounds in 1860. In 1867 it was estimated at 10,500,000 pounds, and at a much higher figure in 1868.

The mineral deposits of Michigan are on a magnificent scale. The upper peninsula is especially rich in this endowment. Prominent

among its ores are those of copper, which are found in several varieties, mostly in the primitive formations. These copper deposits are the richest in the world, occupying a belt one hundred and twenty miles long and from two to six miles wide. Isle Royal, about forty-five miles from Keewenaw Point, on Lake Superior, is one of the best mining localities, producing copper ore associated with silver. The principal shipping points of this mineral are Portage Lake, Keewenaw, and Ontonagon. During the twenty years closing with 1865, no less than 76,107 tons of copper were shipped from these ports, and in the single year of 1868, 7,500 tons. The exigencies of the war for the suppression of the rebellion, and the superior attractions of the lumber trade, not to mention the gold and silver excitements of Colorado and Montana, have seriously crippled the copper mining interests; but since further legislation in regard to this interest the business has very greatly revived, and promises, if the present protective duties are continued, to become a very great source of wealth and employment.

In Marquette County, on the northern peninsula, are found large deposits of iron. During the seven years ending with 1862, the yield was 414,136 tons; during 1866, it was 273,000 tons; and during 1866, 296,872 tons of ore and 18,437 tons of pig iron. In 1867 the product amounted to 469,320 tons of ore, valued at \$1,130,120. The iron production is steadily advancing.

Bituminous coal is mined in increasing quantities, and salt production is advancing, the mineral being secured in quantity and quality sufficient to amply remunerate the investment of capital and labor. The salt fields around Saginaw have of late received a remarkable development. In 1865 the salt production was 530,000 barrels; in 1866, 407,997 barrels; in 1867, 474,721 barrels, and in 1868 a much larger quantity.

The lumber trade of Michigan is a great and enlarging industry of immense profit to the people. The yield of 1866 was 1,125,000,000 feet, about thirty per cent. in advance of that of 1865; in 1867 it had increased to 1,400,000,000 feet, and in 1868 to nearly 2,000,000,000 feet.

The agricultural and mineral resources so briefly sketched above form an admirable basis to a system of manufacturing industry. The census of 1860 presents in the State 3,448 manufacturing establishments, with a capital invested of \$23,808,226, consuming raw material and labor worth \$24,370,658, the total value of products being \$32,658,356, giving a profit of thirty-five per cent. The manufacturing of that day was mostly confined to the simpler processes, preparing the raw materials for the higher transformation of the arts in the older States. Since then the higher branches of manufacture have been successfully introduced, giving to the people the congenial and profitable occupation of a varied industry.

The lakes abound in fish of various kinds, such as white fish, siskiwit, trout, bass, herring, and maskinonge. This industry is enhancing every year. The interests of the trade are protected by enactments forbidding seine fishing.

The commercial position of Michigan is one of remarkable advantage. It has 1,400 miles of lake navigation along its shores, and a water communication with the Atlantic Ocean. Its central position in the American continent gives it access to a vast internal trade. A ship canal has been completed around the rapids at the junction of Lakes Superior and Huron, giving additional facilities for the commerce of the great northwest. The railway system of the State has developed with wonderful rapidity. The first twenty-four miles of railroad were completed in 1840; in 1868 there were completed and in full operation 1,199



miles, being one mile of road to every forty-seven square miles, and to every nine hundred and seventeen inhabitants. The capital actually invested in railroads is considerably over \$40,000,000; the annual earnings over \$12,000,000. The annual freightage is estimated at 3,000,000 tons.

The public school system is of a very high character for thoroughness of training and efficiency of organization. The university system of this State has already commanded respectful attention among educators not only in this country but also in Europe. It is to be regretted that full statistics of these admirable systems were not available in the preparation of this report.

The area of public lands undisposed of in Michigan on June 30, 1869, was 4,192,330.61 acres. The district land offices in Michigan are located at Detroit, East Saginaw, Ionia, Marquette, and Traverse City. To the registers and receivers of these offices all inquiries in relation to the local status of lands in those districts should be addressed.

The State of WISCONSIN was carved out of the territory ceded to the United States by the State of Virginia. By act of February 3, 1809, (United States Laws, volume 2, page 514,) the region now known as Wisconsin was attached to the Territory of Illinois until 1818, when the latter was admitted into the Union as a State, and Wisconsin was attached to Michigan as a Territory for all purposes of government. The discoveries of extensive deposits of lead in the southwestern part directed public attention and immigration to this section, which was placed under territorial government by act of April 20, 1836. It continued as a Territory until March 3, 1847, when Wisconsin was admitted under the federal Constitution as the thirtieth State.

On its northern boundary it has Michigan and Lake Superior, the largest known body of fresh water on the globe; Lake Michigan, a fresh-water sea of almost equal size, washes the eastern border, and, with Green Bay and the Menomonee River, separates it in part from Michigan. Illinois joins it on the south, and the Mississippi River forms two hundred and twelve miles—navigable throughout—of its western boundary, separating the State from Iowa and Minnesota. The public-land system of surveys has been extended over the whole area of the State, which embraces 59,924 square miles, or 34,511,360 acres.

The surface, nowhere rising into mountains or lofty ranges of hills, may be regarded as one vast undulating plain, in some places broken and picturesque, and in others level. The whole State lies at an altitude of from 600 to 1,500 feet above the level of the sea. The divides between the different streams generally attain but a slight elevation above the valleys; and the waters of a lake and marsh are frequently drained in opposite directions, reaching the ocean by widely different courses and at very different points. The highest elevation of surface occurs in the northern portion, near the headwaters of Montreal River, where it attains an altitude of 1,800 feet above the level of the sea, gradually declining in its westward expansion to 1,100 feet at the west line of the State, this elevation forming the divide between the waters flowing into Lake Superior and those into the Mississippi River. The streams south of this divide flow south, southeast, and southwest. There are other local elevations or mounds, as they are called, rising to a height of several hundred feet above the general level of the country. These occur in Grant, Iowa, and Dane counties, in the southwest portion of the State. A series of calcareous clays extends along the Mississippi River, giving rise to scenery grand and beautiful. A series of bluffs of less prominence extends along the eastern shore of Green Bay and Lake Win-



nebago southwest through Dodge County, these elevations forming exceptions to the general surface. The whole area of the State is traversed by numerous streams and rivulets passing through every section. The St. Croix River, through the western part of the State, is 170 miles in length, draining a surface of 3,600 square miles; the Chippewa lies next, on the east, flowing south over 220 miles and watering 7,000 square miles. The Black River, between the Chippewa and Wisconsin, is 145 miles long, watering 2,200 square miles. The Wisconsin, having its source in Lac Vieux Desert, on the northern boundary, runs southwest 370 miles, draining 11,000 square miles, and, with all the streams mentioned, unites with the Mississippi. Rock River, in the southern part, has its source in Lake Horicon, flows south 125 miles to the south boundary of the State, entering Illinois, and uniting with the Mississippi 1,590 miles above New Orleans. Fox and Wolf Rivers, in the interior, the former flowing south 165 miles and the latter north 225 miles, drain an area of 10,600 square miles. The Menomonee, constituting 100 miles of the eastern border, drains an area of 4,000 square miles in the State, discharging its waters into Green Bay. The other principal streams are the St. Louis, Bois Brulé, Bad, and Montreal, which discharge their waters into Lake Superior; the Pishtego, Oconto, and Pensaukee, flowing into Green Bay; and the Sheboygan, Manitowoc, and Milwaukee, into Lake Michigan. The streams emptying into Lake Superior have the most rapid descent, the beds of those tributary to Lake Michigan and the Mississippi River having more gradual and uniform slopes. Rapids occur in most of the streams, affording immense supplies of water power. The heads of different streams are often situated very near each other, those of the Fox and Wisconsin approaching so near that they have been joined by a short canal at Portage City, through which vessels may pass at high water, thus uniting the great lakes with the Mississippi. The Wisconsin, Chippewa, Wolf, and Black Rivers, are navigable for steamers.

Lake Winnebago, southeast of Green Bay, is the largest in the State, 28 miles in length and 10 in breadth, covering an area of 212 square miles; it is daily navigated by steam between Fond du Lac and Menasha, situated respectively on its north and south extremities. The other principal lakes are Pepin, St. Croix, Green, Geneva, Pewaugan, Pewaukee, Horicon, the Four Lakes, and Kaskoneong. The whole surface of Wisconsin is studded with beautiful small lakes, more particularly in the region of the St. Croix and Chippewa Rivers.

The geology of the State is comparatively simple, the series of rocks extending only from the trappean, or primary system, to the devonian. Its whole surface, with the exception of the lead regions in the southwest, and the country lying along the Mississippi River, is covered by the remains of the "glacial" or "drift" period, consisting of disintegrated fragments of almost every geological formation. Hence it is that soils of great uniformity of character cover large areas, since the drift deposit rather than the underlying rocks gives character to the soil. All the geological formations are older than the coal measures, and hence no coal deposits are found in the State.

The trappean series occupies small areas in five localities on the Wisconsin in Marathon County, in three in Douglas County, in two on St. Croix River in Polk and Burdett counties, the largest area being in Asland County, in the northern part of the State. The metamorphic rocks prevail throughout nearly the whole northern portion, and as far south as the rapids on Black, Wisconsin, Chippewa, Wolf, and Menomonee rivers. These formations prevail over nearly 8,000,000 acres. Vast deposits of copper and iron ore occur in this region. At Grand

Rapids, on the Wisconsin, are found extensive deposits of kaolin, the material used in the manufacture of the finest potteries. This is the most elevated portion of Wisconsin, the most abundantly watered, sparsely settled, and least improved of any section. It embraces the great lumber region, the lumber trade having become an extensive interest. This section has not been fully explored and developed, and may yet be found to contain extensive deposits of minerals. The Potsdam sandstone prevails in the northwest, on Lake Superior and south of the azoic system, stretching across the State from the Menomonee to the St. Croix, in a belt from ten to sixty miles wide, its greatest width being in the interior of the State in the valley of the Wisconsin. It contains extensive calcareous deposits, embracing fossil remains of animals of the primordial fauna of great geological interest. The strata of this rock are very irregular, twisted and curved, indicating their gradual deposition from currents of water. Prominent isolated peaks and bluffs occur, as well as places where large rivers have worn passages through narrow gorges in the rock. The stone is very soft, and alternated with sandstone, the two combining in their decay to form a remarkably rich and productive soil. This formation contains iron ore in very considerable quantities. Quartzite and conglomerate represent small areas in different sections of the Potsdam and azoic series, the largest deposits being in Marathon, Ashland, and Douglas counties. The lower magnesian limestone series prevails in small irregular and disconnected areas covering the uplands and divides of the small streams, the Potsdam limestone prevailing in the valleys of these streams, tributary to the Mississippi and Wisconsin, and over a tract from five to ten miles wide, extending from Grand Rapids on the Menomonee southwest to Madison. Deposits of copper ore occur in a few places in this series, and lead is supposed to exist. The upper sandstone rocks occupy a small area in the State, principally in the valleys of Rock River and its leading affluents in the southern part of the State, and a strip two miles wide extending in an irregular direction from the Menomonee to the southwest boundary of Dodge County. The blue and buff limestone, corresponding with the Trenton limestone of New York, succeeds this series, and prevails over an irregular area extending from the Menomonee River southwest along Green Bay, Rock River, Lake Winnebago, where its greatest width, twenty miles, is attained, and thence southwest to the State line. It is also found in the southwest of Wisconsin. The Galena limestone succeeds the Trenton limestone series, prevailing in Grant, Iowa, Lafayette, and part of Green counties in the southwest, and extends from Lake Winnebago in a southern direction. This series yields large quantities of lead, copper, and zinc. The soils of the region covered by it are generally rich and productive. A series of shale, two miles wide and one hundred feet thick, extends from Green Bay southwest, in a serpentine course, to the southern boundary of the State along the eastern shore of Lake Winnebago and the eastern border of the Galena limestone formation. These rocks are succeeded by the Niagara group, occupying the peninsula between Green Bay and Lake Michigan, and extending southwest to the southern boundary, leaving the lake shore near the southern line of Keweenaw County, and approaching Milwaukee. These rocks afford abundant material for building and quicklime. The Racine or Upper Niagara limestone prevails on the east of the last-named series, occupying the greater part of the lake shore from the town of Two Creeks to the southern boundary. The shaly limestone, or Onondaga salt group, extends from Milwaukee north, in the form of a crescent, approaching the lake fifteen miles north of that place, being about one mile in width.



East of this series the Upper Helderberg limestone of the devonian system occurs, containing fossil fauna of much scientific interest.

Lead is the most important mineral product, occuring in Grant, Iowa, and Lafayette counties as the sulphuret, or galena, with small deposits of the carbonate. The deposits in this locality were discovered in the beginning of the seventeenth century, but attracted little attention until 1826. Last year the mines in Iowa County alone produced 2,954,000 pounds. Lead mining is now carried on with skill and capital, giving employment to 3,000 persons. Zinc is, in large quantities, associated with lead in the southwest. Until recently no attention has been paid to this mineral; but works have lately been erected for the reduction of the ores of zinc, which had been regarded as of little value and tending to embarrass lead-mining. Last year the shipments from Mineral Point, in Iowa County, were 4,484,000 pounds zinc ore, 10,214,000 pounds oxide of zinc, and 630,580 pounds zinc spelter. Iron ore is now mined at Iron Ridge, in Dodge County, and Ironton, in Sauk County; it is known to exist in vast quantities in Penokee Iron Ridge in Ashland County, near Lake Superior, at the Black River Falls in Jackson County, and in several other localities. Deposits of magnetic ores occur in the azoic rocks in the northeast part. Native copper occurs in the northern part, and in Crawford and Iowa counties, in the southwest, is frequently associated with zinc. Deposits of peat and shell marl are found in the beds of ancient lakes and in the extensive marshes, plumbago and gypsum existing in considerable quantities. Clays abound of all kinds, suitable for the manufacture of common earthen wares; also brick clay everywhere in abundance—that found in the vicinity of Milwaukee forming brick of a cream color, equally noted for beauty and durability. Limestone prevails in the greatest abundance, some varieties being susceptible of beautiful polish almost like marble. The extensive prairies of Northern Illinois reach into Southern Wisconsin, and a line extending from Racine on Lake Michigan in a northwesterly direction will separate the prairie and opening, or sparsely timbered district, from that covered with dense forests. The northern part of the State yields vast quantities of timber of the finest quality, and of sixty different varieties, among which are the white and Norway pine, oak, balsam, hemlock, cedar, hickory, ash, elm, poplar, sugar maple, birch, basswood, aspen, tamarack, wild cherry, spruce, black walnut, and butternut. The white and red or Norway pines constitute the basis of the forests of the State, from which the vast supplies are obtained.

¶ A line extending northwest from Sheboygan, on Lake Michigan, to St. Croix Falls, in Polk County, will give the southern limit of the great pineries of Wisconsin. The business of cutting, manufacturing, and transporting lumber from these regions has assumed immense proportions, giving employment to thousands and yielding every year hundreds of millions of feet of lumber. This immense trade has been annually going on, with as yet no indications of exhausting the supply. The sparsely timbered region is dotted over principally with oaks, giving the whole surface the appearance of an extended lawn. Nearly the whole State area affords sufficient supply, with easy access of timber for fuel and present economical purposes.

The soils are somewhat varied; those in the southern portion, and particularly in the southeast, are very fertile; but in the northern expansion they become thinner and best adapted to grazing. Agriculture is the chief object of industry, yielding abundant rewards for all well-directed efforts. The fertility of soils and adaptability of the climate to the culture of the various products are placed beyond question by the



agricultural statistics. Those of Wisconsin show large yields of wheat, rye, oats, barley, buckwheat, corn, hay, flax, potatoes, tobacco, clover, and grasses, which constitute the principal field crops. Besides these products, other crops are produced throughout the State, among which are peas, beans, hemp, grapes, hops, broom-corn, sorghum, and flax-seed, showing the soil and climate to be well adapted to varied agriculture. Large quantities of butter, cheese, and honey, are annually produced, and the value of the milch cows alone was, in 1868, over \$12,000,000. A large part of the State is admirably adapted to fruit culture, and all kinds of vegetables grown in the northern latitudes are here produced in abundance and perfection.

The average annual rain-fall, according to meteorological observations, is thirty-one inches, the amount falling on the shores of Lake Michigan. The quantity, however, varies from twenty-two inches in the region of Lake Superior to thirty-six inches at Beloit, on Rock River, near the northern boundary. The fall is quite evenly distributed through the seasons, the largest quantity falling from the first of April to the first of October, the season of vegetable growth and maturity. The rain-fall decreases in proceeding northward, but the wondrous economy of nature is shown in the existence of large numbers of small lakes upon a more elevated surface, rendering the rain-fall ample for every species of vegetable production.

The mean annual temperature of the southern part is 46° Fahrenheit, nearly the same as that of Berlin, in Prussia, Bergen, in Norway, Copenhagen, in Denmark, and Cracow, in Poland. The winter temperature is 20°, spring and autumn 27°, and summer 72°. The prevailing winds of autumn and winter are from the west, in summer southeast, and in spring northeast. Snow falls in the northern part before the ground is frozen, protecting the roots of plants from the frost of winter, and accelerating vegetable growth in the spring; while in the southern part some winters pass almost entirely without any fall of snow, and in other seasons snow falls to the depth of from twelve to eighteen inches, covering the whole surface, and remaining the greater part of the winter. The winters are cold, but generally uniform; the springs are somewhat backward, the summers short and very warm, the autumns mild and pleasant. The climate is conducive to good health and longevity. The clearing of forests, the progress of decay of a dense growth of vegetable matter rendering the virgin soil fit for the plow, is attended with more or less malaria, but after a few years' cultivation, as the country becomes settled, malarial diseases disappear.

The railroad interest is attaining magnificent proportions. In 1850 there were twenty miles of railroad completed in the State; in 1860 there were eight hundred and twenty-nine miles; and at the close of 1868 the number of miles was increased to one thousand two hundred and thirty-five, while at the present time there are over two thousand miles completed and projected. The gross earnings of the railroads of the State for last year were \$7,531,810,36. The several routes traverse the richest and most populous portions of the State, the railroad system of this section being designed to extend to every important part of the State, and is now rapidly pushed forward to completion. Wisconsin lies on the main path of the proposed trans-continental route, with which is to be connected the whole railway system of the State. This great national thoroughfare will secure a due proportion of the vast trade between Eastern Asia and Western Europe which will yet pass over this continent. This gigantic enterprise will open up an immense extent of the finest agricultural region in the Union, placing it in direct commu-

nication not only with commercial ports of our own country, but of those trans-continental. Ample provision has been made by the State and national legislatures for advancing the cause of education, while church accommodations are ample.

Liberal provision has been made for the unfortunate of every class, institutions having been established for the insane, deaf, dumb, and blind, which are opened free of expense. The population of the State in 1830 was 3,245; in 1840, 30,945; in 1850, 305,391; in 1860, 775,881; in 1865, 869,016; and in 1868 it was estimated, upon the basis of the votes cast at the general election, at 1,054,952. The wealth and internal improvements have been rapidly advancing, keeping pace with the expanding population. The State affords ample facilities for manufactures, and that important interest is assuming grand proportions.

Madison, the political capital, is beautifully situated on a peninsula between the Third and Fourth of the chain of The Four Lakes, in the midst of a rich agricultural region. It has ample railroad facilities and a population of 12,000.

Milwaukee, the commercial metropolis, is situated on the western shore of Lake Michigan, ninety miles north of Chicago, seventy-five east of Madison, and eighty-four west of Grand Haven, Michigan, on the opposite shore of the lake. It is one of the principal railroad centers in the State and of the Northwest, enjoys an active trade with the finest wheat-producing region on the globe, and has long been classed as the greatest primary wheat market in the world. This beautiful city has one of the finest harbors on the northern lakes, supports a regular line of steam propellers communicating with all the principal ports on the great chain of lakes, with one crossing the lake to Grand Haven during nine months of the year, and has a population of nearly 100,000.

Racine, Kenosha, Fond-du-Lac, Oshkosh, Janesville, Beloit, Green Bay, and Watertown contain populations varying from eight to fifteen thousand. There are twenty-two other towns with populations of three thousand, and sixty others containing one thousand and upward. The value of real and personal estate for 1868, as determined by the board of assessment, was \$244,440,794, and increase of \$47,589,613 03 over the preceding year. According to that rate of increase the present value of personal estate and realty will amount to nearly three hundred million dollars. Only one-eighth of the whole area of the State is now under cultivation. This region offers liberal inducements to persons of every calling and condition in life, especially to those desiring to secure homes at nominal rates. It presents a fine field alike for capital and labor, and their judicious application here will yield an abundant reward.

There are yet to be disposed of in the State 8,694,316.80 acres of public land. District land officers are stationed at Menasha, Falls of St. Croix, Stevens Point, La Crosse, Bayfield, and Eau Claire, who are prepared to entertain applications for the entry of public land.

MISSOURI, a part of the region of country acquired from France by purchase in 1803, was organized under a territorial government June 4, 1812, and admitted into the Union, as the eleventh new State, March 12, 1820. Its greatest length from east to west is 318 miles, its width 280 miles, with an area of 65,350 square miles, or 41,824,000 acres, equal to Virginia, Connecticut, and West Virginia, or to Georgia and Massachusetts. This State, situated between latitudes 36° 31' and 40° 30' north, occupies a central position in the Union, with Iowa on the north, the Mississippi River on the eastern border, in a course of five hundred miles, separating it from Illinois, Kentucky, and Tennessee; Arkansas on the south, and the Indian country, Kansas, and Nebraska



on the west. The Missouri River, forming two hundred and fifty miles of its western border, and separating it from Nebraska and the northeastern part of Kansas to the mouth of the Kansas River, then turning to the east, flows four hundred miles through the central portion of the State in a southeasterly direction to the Mississippi. Besides these two mighty streams, both navigable for hundreds of miles beyond the limits of this State, there are many other water-courses, draining its whole area.

In the eastern part the streams flow in a general easterly course and unite with the Mississippi, the largest of which are the Wiaconda, North Fabius, South Fabius, Salt, Au Caivre, and Maramec. In the southern part the rivers flow south into Arkansas, and among these are the St. Francis, Big Black, Current, Spring, Eleven Points, White River and its north fork, and James River. In the extreme southwestern part the Elk and Spring Rivers flow southwest, uniting with Grand River, an affluent of the Arkansas. The principal affluents of the Missouri from the south are the Gasconade, Osage, and La Mine, while the Platte, Chariton, and Grand Rivers flow from the north and are all navigable at certain seasons of the year by light-draught steamers. Small streams and excellent springs are found in various localities throughout the State. Water power is abundant on nearly every stream, but the most valuable of these is that afforded by the large springs so numerous, particularly in the southern part of Missouri.

Many saline springs are in the central portion of Missouri, in Cooper, Saline, Howard, and the adjoining counties. Fine sulphur springs occur in nearly half the counties, but those which have acquired the greatest celebrity and public resort are the Elk Springs in Pike County, the Chouteau in Cooper County, the Cheltenham Springs in St. Louis County, and the Monaghan in St. Clair County. There are many chalybeate springs diffused throughout the State, those containing carbonates and sulphurets being the most numerous. Several of these have acquired considerable notoriety on account of the medicinal properties of their waters. Petroleum springs occur in Cass, Lafayette, Vernon, Bates, Carroll, Ray, Randolph, and other counties some of which have proved very valuable, those producing lubricating oil being the most common.

The geology of Missouri presents a wide range of formations and systems, including an extensive variety of useful minerals. The surface deposits of the quaternary system are well developed, and include the alluvial bottom, prairie, bluff, and drift formations, constituting the principal basis of the soils of the State.

The tertiary system embraces the beautiful variegated sands, clays, shales, and iron ores, which prevail in the southeast in the bluffs from a short distance below Cape Girardeau to the chalk bluffs in Arkansas, while the variegated sandstone, clays, and the ruptured and inclined bed of hornstone on the bluffs above Cape Girardeau, are reckoned as belonging to the cretaceous system. The carboniferous system is made up of the coal measures, Kaskaskia, encrinital, St. Louis, and Archimedes limestone and ferruginous sandstone.

The devonian system is represented by the vermicular and Oriskany sandstones, the lithographic, Onondaga, and Chouteau limestones, and Hamilton shales. The Niagara group, Lower Helderburg, and Cape Girardeau limestones occur in the upper silurian series, while the Hudson River group, Trenton, Black River, and birdseye limestones, both alternating formations of magnesian limestone, and sandstone, are found here representing the lower silurian series. Below these formations a series of metamorphosed slates occurs. The undulations of stratified



rocks throughout the State are very gentle, approaching a horizontal position. Valuable deposits of coal have long been known to exist, and their presence has added largely to the progress and wealth of the State. Estimates, based upon the results of geological reconnaissances, place the area of the coal fields of Missouri at 26,887 square miles, falling in thirty-six counties, principally in the central and western portions. The extent of these deposits is estimated at 130,000,000,000 tons. There are also other extensive local deposits of cannel and common bituminous coals in several counties outside of the regularly defined coal fields, which produce some of the best coal in the State. Iron ores of the best quality exist in almost inexhaustible quantities, of which the specular oxide ore is the most abundant. The most extensive deposit of this ore is at Iron Mountain in Iron County. It is estimated that this mountain will yield 230,187,375 tons above the valley, and 3,000,000 tons to each foot beneath that surface. This ore also occurs extensively in Dent, Phelps, Pulaski, and other counties. Vast deposits of silicious specular oxide of iron exist in Pilot Knob, about six miles east of Iron Mountain, where it has been mined since 1847. It is five hundred and eighteen feet high, covers an area of three hundred and sixty acres, and its yield is estimated at 13,972,773 tons above the level of the valley. Shepherd Mountains, one mile west of Pilot Knob, contain vast quantities of pure specular and magnetic oxides. Hematite of good quality occurs in large quantities in the magnesian limestone rocks. It also occurs in abundance in the ferruginous sandstone and tertiary rocks, but generally of inferior quality. It abounds in Scott and Stoddard Counties and the counties adjoining Iron Mountain, as well as in several counties in the western part of the State south of the Missouri; large quantities of bog-ore exist in the swamp districts in the southeast, while spathic ore is found everywhere in the coal-measure rocks; but the most valuable deposits of both these ores are in Scott County.

Among the other important minerals found in this State, lead is perhaps the most abundant and valuable. It occurs in some six hundred localities, embracing thirty-one counties. The principal lead regions are the counties southwest of St. Louis, in the valley of the Osage, in Jasper and Newton, and in Webster, Christian, and Taney Counties, near the southern boundary. The whole area embracing lead deposits in workable quantities includes 6,300 square miles, while the lead-bearing rocks embrace an area of 15,000 square miles. Copper exists in twenty-two counties, in some localities in considerable quantities. Zinc occurs principally in the southwest, and in the lead regions chiefly as sulphurets, carbonates, calamites, silicates, but as yet no extensive mining has been done. It is represented that valuable deposits of tin ore also have lately been discovered. Cobalt and nickel have been found in several localities in considerable quantities, and peroxide of manganese exists in limited extent in the eastern part of the State. Silver occurs in several places in juxtaposition with sulphuret of lead, while gold has been found in small quantities in a few localities. Antimony and saltpeter have also been discovered in different localities. All these rich mineral deposits occur in close connection with vast quantities of coal, timber, and water. The whole mining system of this State is yet comparatively in its infancy, but will, of course, increase with the expansion of settlements and extension of facilities for communication and transportation.

Building material of all descriptions abounds throughout the State, including vast quantities of the most valuable timber, an extensive

variety of sandstone and limestone, with materials for the manufacture of bricks and tiles. There are also several beds of superior marble, of various colors and textures, in different sections of the State, with materials for paints and cements. The flora embraces a very large number of species, including nearly every valuable wood found in the great Mississippi Valley.

The State of Missouri comprises almost every variety of surface except the extreme mountainous. The Ozark Mountains occupy a large portion of the interior south of the Missouri, extending to the southwest corner of the State; but they are rather high hills and ridges than mountains, with prairies intervening. In the southeast the country is low, flat, and marshy. West of the Ozark the surface spreads out with broad rolling prairies extending to the western boundary. North of the Missouri the country attains the highest altitude in the northwest, gradually inclining to the south and east—all the streams flowing south. The divide between the waters flowing into the Mississippi and those uniting with the Missouri from the north constitutes an elevated plain and is traversed by the North Missouri railroad. Besides these general undulations there are frequent local irregularities of surface, which give the whole area its rolling character. The numerous water-courses everywhere intersecting the country have worn deep valleys, giving some places a rough and broken appearance. The general surface is, however, level. The valleys form an important feature in the physical structure of the State, and exercise a material influence upon its climate. The bottom lands are exceedingly fertile, and on the large streams vary in width from two to ten miles, those on the smaller streams being of a proportionate width.

The soils include an extensive variety, affording facilities for a remarkably varied agriculture. The alluvial regions include the high and low bottoms, swamp, and cypress lands. The high bottoms have light, deep, porous, silicious soils, are very productive, being little affected by the wet and dry seasons. These lands are above the ordinary high water, and embrace nearly one-eighth of the whole area of Missouri; the low bottoms differ from the high bottoms only in being subject to inundation at the ordinary rises in the rivers, which occur on all the streams, but principally in the southeast. The soils of the swamp localities are very similar in composition to the two preceding classes, yet differ in being so situated as to be overflowed; while the cypress lands are still lower, and are covered with standing water during a portion of the year. These lands are principally in the southeast. The soil is exceedingly rich, supporting a luxuriant growth of vegetation. The greater part of the swamps may be made available for agricultural purposes by an extensive system of drainage, but the cypress swamps are generally valuable only for their luxuriant growth of timber.

The uplands possess a greater variety of soils and surface, and are available for a wider range of agriculture. Some of these lands are very fertile and capable of high cultivation. Considerable portions, particularly in the southern part of the State, are superior for fruit. Here the grape grows in perfection, and it is estimated that there are 15,000,000 acres especially adapted to wine culture. Fruits of all kinds, and particularly the propagation of the grape, have already attracted attention, promising to become important branches of rural industry.

The State is nearly equally divided between prairie and woodland. The prairies are clothed with luxuriant growth of excellent, nutritious native grasses, which also exist in the woodlands, on the uplands and



hillsides in the southern parts of the State, rendering this section especially an excellent grazing region.

The climate of Missouri, although subject to extreme and frequent changes in temperature, is generally healthful and favorable to longevity, the atmosphere being dry and pure. The annual amount of rain-fall, according to observations made near St. Louis, for twenty-eight years was 44.48 inches. The State affords superior commercial facilities, enjoying an extensive system of river and railroad communication. There were at the close of last year 1,354 miles of railroad in operation, with large extensions projected and in progress of construction.

The State occupies a position most advantageous with reference to commerce, being crossed by lines of interoceanic railways and others converging toward the commercial metropolis of the Mississippi Valley, while the great highway of trade sweeping along its eastern boundary, offers ready and economical transportation for its agricultural and mineral products to the best markets, domestic and foreign. Ample provision has been made for education in the State, while the church accommodations compare favorably with those in other political divisions west of the Mississippi. Jefferson City, on the Missouri, in the interior, is the political capital, with a population of upward of five thousand. St. Louis, the chief city of the State and the metropolis of the Mississippi Valley, has an estimated population of two hundred and fifty thousand. It is rapidly growing in wealth and commercial importance, possessing superior natural advantages for trade, and as a manufacturing point is surrounded on all sides by regions rich in almost every element of agricultural and mineral wealth. The State of Missouri offers many inducements and advantages to immigrants from every quarter and of every calling and condition in life. To the agriculturist it reveals regions of the greatest fertility, capable of growing a wide range of the choicest agricultural products, and at nominal rates, with ready markets accessible to all. To the miner it presents a wide range of valuable mineral products, promising a rich return to all well-directed applications of labor and capital. And to the manufacturer it offers an accessible proximity to vast stores of useful minerals and the products of rural industry, fuel and timber in abundance and excellence. All may find homes here and reap ample rewards for their labor. District land offices are located at Boonville, Ironton, and Springfield, the amount of public lands yet to be disposed of being 1,181,129.30 acres.

IOWA occupies a beautiful zone between the parallels of  $40^{\circ} 30'$  and  $43^{\circ} 30'$  north latitude, extending from the Mississippi to the Missouri. Its extreme length is about three hundred miles, with a nearly uniform breadth of two hundred and eight, including an area of 55,045 square miles, or 35,228,800 acres. The census of 1860 exhibits an aggregate of 10,069,907 acres included in farms, being an increase in ten years of 7,333,833 acres, or over 260 per cent., while the class of improved lands advanced during this period from 824,682 acres to 3,792,792 acres, or over 360 per cent. The cash value of farms advanced from \$16,657,567 to \$119,899,547, or 620 per cent.; the value of farm implements from \$1,172,869 to \$5,327,033, nearly 400 per cent. The soil of Iowa is excellent for cereals and almost all other kinds of agricultural production, the area not suitable to plow culture being generally available for grazing. The extent to which cattle and sheep husbandry has been pursued indicates splendid capacities in the latter direction. The surface presents a great variety of graceful undulations, securing admirable drainage, and is diversified with agreeable alternations of prairie and timber land. The climate is delightful, being very dry and bracing,



presenting an easy transition from the great fructifying heat of Missouri on the south to the depressed temperature of Minnesota on the north. The climate of the southern portion is suited to maize, while that of the north is more genial to wheat culture. The soil is very well watered with springs and streams. The agriculture of the State is remarkably free from the annoyance of rust or insects. Fruit crops are specially profitable. The State census of 1868 reports 9,089,491 acres inclosed, of which 1,162,954 were set in wheat, harvesting 16,099,072 bushels; oats, 554,798 acres, harvesting 17,447,643 bushels; corn, 2,191,635 acres, producing 62,621,831 bushels; rye and barley, 91,978 acres, yielding 1,859,627 bushels; sorghum, 28,375 acres, producing 2,304,012 gallons of molasses and 16,166 pounds of sugar. Of potatoes, 3,167,959 bushels were gathered from 102,171 acres. Of hay, 656,371 tons of tame and 905,468 tons of wild grasses were cured. The statistics of fruit production show 1,182,694 trees in full bearing, and 3,992,767 not yet producing, indicating a very large increase in this branch of agricultural industry. Of grapes, 604,096 pounds were produced and 32,444 gallons of wine. Of tobacco were raised 423,500 pounds; of hops, 53,518 pounds; of honey, 986,419 pounds, besides 39,992 pounds of beeswax, were gathered from 94,299 hives of bees. Compared with the reports of the census of 1860, the above aggregates indicates increments of from fifty per cent. to ten and twelve fold.

The reports of live stock embrace 491,801 horses, mules, and asses; 1,411,000 cattle, including 359,214 cows, yielding 21,111,997 pounds of butter and 1,544,250 pounds of cheese; 1,899,853 sheep, shearing 5,855,723 pounds of wool, showing increments over 1860 varying from 200 to 600 per cent. The expansion of agricultural enterprise in this State has been remarkable, even amid the grand developments of the West during the decade nearly concluded, the results of which will be revealed in the census reports of 1870. The introduction of hedges has added an element of surpassing beauty to the Iowa landscape, superseding the repulsive rail fences so common in the neighboring States. A million of rods have already been planted, and the movement in this direction is increasing in momentum.

The mineral resources of Iowa are extensive and rich. The great coal-field of Missouri and Iowa covers an area of 25,000 square miles in the central and southern parts of the State, bounded by a line approaching to a semicircle, outside of which is a belt of the upper carboniferous limestone of variant width; the channel of the Mississippi on the south-east cuts through a belt of lower carboniferous limestone. During the year 1868 the coal product was about 2,731,311 bushels, about eighty bushels being equal to a ton. The coal veins in Iowa are generally not so thick as in the southern portion of the same coal field in Missouri. The great Mississippi lead region extends into Iowa, forming the basis of an extensive mining enterprise. Dubuque is the center of lead production in this State. The value of lead, copper, and zinc exported was \$352,902; the copper is sometimes found associated with silver.

The manufacturing industry of Iowa in 1860 was represented by 1,939 establishments, with a capital of \$7,247,130, employing 6,142 male and 165 female operatives, at a cost for labor of \$1,992,417, and for a raw material \$8,612,259; the annual product was \$39,971,325, showing increments ranging from three-fold to twelve-fold in ten years. In 1868 the annual product was \$17,533,358, of which amount \$12,498,642 were absorbed by the manufacture of agricultural vehicles and implements. The results of this productive system are astonishing, even amid the marvels of American civilization. The true gold value of personal and real estate

of Iowa cannot be less than six hundred or seven hundred millions of dollars. The commerce secured by her admirable geographical position is already large, and increasing at an accelerating ratio. The natural facilities for communication are commanding. Her eastern and western borders are washed by the Mississippi and the Missouri. The Des Moines, Skunk, Iowa, and other rivers furnish an aggregate internal navigation of five hundred miles, besides an incalculable water power. The artificial highways include one thousand five hundred and twenty-three miles of railroad complete and in operation, with several hundred miles under construction or projected, with fair prospects of speedy completion. There is now about one mile of road to every thirty-nine square miles of territory, or to every six hundred and eight inhabitants. These roads represent a fixed capital of \$38,500,000, and transport annually some 3,500,000 tons of freight, worth about \$300,000,000. The stimulating effect of this vast network of internal improvements upon the productive and commercial interests of the State is beyond computation; every branch of production feels the genial influence and is advancing to incalculable results.

The moral and intellectual forces of this massive civilization are partly indicated by the educational and religious statistics of the State. Among the educational institutions are sixty-eight colleges, universities, and high schools, of superior character. They instruct four thousand three hundred and forty-six students, a gain upon the returns of previous years. Of the public schools of the State it is regretted that no reports or statistics were available for the preparation of this report. It is a matter of notoriety, however, that the general advance in this respect has been equal to that of her sister States of the northwest, while special improvements have been made in several important respects which might well be emulated by the educational movements of the older States.

The population is over a million, and rapidly increasing from the heavy annual immigration especially of Scandinavian and Teutonic elements of Europe. The urban population of the State is increasing in a still more rapid ratio than the rural. The young cities are advancing in all the elements of municipal prosperity. Des Moines, the capital, at the head of steam navigation on the river bearing the same name, is a thriving city of eleven thousand inhabitants. Its railroad connections, east and west, are steadily enlarging, making it the center of a very considerable trade, travel, and production. It is surrounded by fertile areas and valuable mineral lands, and promises to become a large and important center of trade and production.

Dubuque, with a population of twenty-six thousand, in the heart of the lead region, already enjoys a large trade. Its aggregate in 1868 was \$17,600,000, showing, among other items, the export of 34,000,000 feet of lumber, 100,000 barrels flour, 2,000,000 bushels wheat, 17,600,000 pounds pork, and 25,000 live hogs. The product of manufactures during 1868 was \$3,513,000. The city contains nineteen churches, sixty-one public schools, with three thousand pupils, and a full complement of private schools.

Davenport is a handsome city of twenty-one thousand people, with \$1,000,000 invested in manufactures. Its river and railroad trade is large and increasing. Iowa City, the former capital, the present seat of the State University, is a thriving and important city. The other towns in the State exhibit as rapid a growth as is consistent with the general symmetry of civilization.

Taken as a whole, Iowa offers extraordinary inducements to immigra-



tion. The area of public lands undisposed of on the 30th June, 1869, in this State, is equal to 1,978,081.41 acres.

MINNESOTA is regarded as one of the most beautiful and healthy States of the Union, the soil being rich and fertile, the climate bracing and delightful, every kind of industry being abundantly rewarded. One of its most peculiar and remarkable features is the deep indentation in the surface of the streams and water-courses. The bluffs in many places are hundreds of feet high, creating, at first, the impression that the adjacent country is mountains. But when the top of the bank is reached the land spreads out in undulating fields, hills, and valleys, blending in each other, and sufficiently rolling for all purposes of drainage, yet susceptible of easy cultivation. Prairie and timber alternate. The surface is covered with soft and tender grass, presenting the appearance of green velvet, studded with sparkling lakes or intersected by silver streams and brooks, abounding with fish of most exquisite flavor, wild fowl of every variety being found in abundance. These lakes and streams present a picturesque outline; the former of almost every size from an acre to a surface of miles, in all cases the sod descending to the water's edge. The lakes and water-courses are as clear as crystal, a short distance below the surface being deliciously cool, even in the hottest weather. It is seldom that the inhabitants suffer from heat, and only in the middle of the day—the nights being cool and refreshing.

No State possesses greater natural advantages for crop-raising and pasturage. In almost every section there is an ample supply of timber while the adjacent and rich prairies are ready for the plow. Thousands of cattle are fed on the luxuriant grasses of the lowlands, increasing the wealth of the farmer with but little care or labor.

As the resources of this State are developed they are found to increase in extraordinary ratio, and are, apparently, almost inexhaustible. A few years ago Minnesota imported most of the necessities of life, when there was even a deficiency in bread and meat. Now her exports far exceed the imports in almost every particular, various manufactories being rapidly established throughout the State. Freed from the presence of the Indian tribes, her people can now till the soil in confidence and safety, with nothing to molest them.

Here seasons of drought are unknown. The great lakes on the north and east, the numerous streams and smaller lakes that diversify this region, with the Mississippi and Red River of the North, present such a large surface for the action of the sun's rays during the summer that evaporation is rapid, and is generally condensed by the cool nights, watering the earth with numerous and seasonable gentle showers.

The great and rapid enlargement of the agricultural and manufacturing wealth of this State has been more than sustained during the past year; as the crops have not been fully prepared for sale, the exact increase cannot yet be satisfactorily ascertained. The season has been most propitious, and a large and increased surface has been placed under cultivation, with proportional increase in product. Wheat of most excellent quality has been harvested, averaging twelve bushels to the acre. The country is actually burdened with oats, which have yielded thirty-eight bushels to the acre. Potatoes, of large and superior quality, have yielded one hundred and ten bushels to the acre, while the corn is in excess of the farmers' hopes. Other grains have yielded proportionally. Garden fruits are in great plenty, while wild fruits abound of the finest quality and of every description.

Last year sixty-five steamers, of 16,486 tons, were constantly run-



ning to the port of St. Paul, and two hundred and forty-eight barges, with an estimated capacity of 37,000 tons. As the products and manufactures increase, importations are necessarily reduced.

In 1860, the whole number of farms in the State was 18,081, valued in cash at nearly nineteen millions of dollars; the agricultural products valued at \$6,748,707, and the taxable property appraised at nearly thirty-seven millions of dollars, giving a gross return of eighteen per cent. for agricultural products. In 1866, 790,000 acres were under cultivation, of which 520,000 were in wheat. The exports of wheat were 9,267,153 bushels, and the total value of live-stock on the 1st January, 1867, was nearly fifteen and a half millions of dollars. The crops of small grain during the present year have been unprecedented; corn, however, on account of the heavy spring rains, will not yield so abundantly to the acre; but owing to the unusual amount planted, that deficiency will be more than made good. Already this beautiful State has a surplus of more than twenty million bushels of grain above home consumption, and no region yields speedier return for the labor of the husbandman. The country is all particularly adapted to wool culture, the fleeces being thick and fine, while the mutton is of the best quality.

Minnesota contains an area of 83,531 square miles, or 53,459,840 acres, of which 25,095,385 have been surveyed, and 28,364,455 remain unsurveyed; 18,727,808 have been disposed of, and 34,732,032 yet remain open to settlement. The population is steadily and rapidly increasing, the State being a favorite resort for settlers from the north of Europe and the northern sections of our own country.

The water-power of Minnesota exceeded that of England in 1850 for textile manufactures, that of St. Anthony alone being equal to 120,000 horse-power. Advantage is now taken of this water-power to a great extent—nearly 500,000,000 feet of sawed timber being annually manufactured.

In the mineral ranges deposits of iron, coal, copper, and lead are known to exist, though as yet but slightly developed; and when attention can be diverted from the more active and pressing matters now occupying the minds of settlers, these mineral deposits will materially add to the wealth of the State. Superior slate exists in abundance near the St. Louis Falls. Limestone abounds in many places; potters' clay has already been found in large quantities, and extensive potteries established. The Indian pipe stone, or red clay, is also found in great quantities, and is being applied to many economical purposes. The numerous salt springs in the Red River Valley are but the beginnings of the immense salines which extend to the west, and will form the basis of great wealth to the State, as all the salt that can be made from them will be consumed in packing beef and pork in those extensive regions, and in domestic economy.

The State is being furnished with railroads in every direction, presenting facilities for the transportation of every article to and from settlers, and forming a network of communication that will speedily develop the ample resources of Minnesota. The Northern Pacific railroad, not yet constructed, when completed, will form one of the most important links connecting the great lakes with the Pacific, and will tend strongly to revolutionize, in favor of the great Northwest, the channels and centers of the trade and commerce of the world. The munificent grants made by Congress for railroads in this State will speedily tend to the completion of all now in contemplation or in process of construction, and will furnish the internal improvements requisite for the present generation.

Education has received special attention from the authorities, and the school system is one of the best to be found in the commonwealths of the West. The whole number of school districts is about two thousand, employing not less than two thousand two hundred teachers, and educating fifty-five thousand pupils. The total number of school houses exceeds twelve hundred, which are valued at \$300,000. The State has a normal school at Winona, a beautiful town on the banks of the Mississippi, in the southeastern part of the State, where sixty students can be accommodated. They are trained here to a knowledge and practice of the best methods of imparting instruction, and of influencing character, so that all those forces which contribute to well-educated communities may be aroused and properly directed. There is a Teachers' Institute, also, where the best methods of instruction and school government are illustrated. To aid in the cause of education Congress has granted to the State two sections in each township. The estimated area of these sections, so far as surveyed, is 1,400,000 acres. Besides this, the government has donated seventy-two sections, or 46,080 acres, for the support of a State university. The titles to these lands have long since been vested.

The valuation of the land of Minnesota is \$35,000,000, and the tax assessment \$2,000,000. The taxable personal property is not less than \$12,000,000. A pamphlet upon the subject of immigration, published by the State, shows the many advantages offered to men of small means who desire homes in newly-settled countries. The prosperity of Minnesota depends mainly upon the success of her agricultural interests, the mineral resources of the State being, so far as discovered, confined to comparatively limited areas in the northeastern part, and the production of raw material for woollen manufactures is subservient to and dependent upon the cultivation of the soil.

The principal manufacturing interests are located at the Falls of St. Anthony, mentioned above, making that enormous water power subservient to the wants of the community. During 1867 the manufactured products of this region reached an aggregate of \$4,600,000, and the additional investments in manufacturing enterprises were over \$2,000,000.

The northern portion of Minnesota is noted for its immense pine forests, almost inexhaustible. The products of this timber at St. Anthony and Minneapolis during 1866 were, of lumber, 77,400,000 feet; shingles, 34,200,000; laths, 18,000,000; pickets, 214,000. The total value of the timber was \$1,800,000. The descent of the Mississippi River at the Falls of St. Anthony is forty-three feet per mile, and the volume of water passing down this declivity per minute is equal to 450,000 cubic feet. The machinery of Manchester, England, and Lowell, Massachusetts, if erected on these falls would scarcely press upon the capabilities of the waters. It has power to grind 300,000,000 bushels of wheat yearly. It could work 270,000,000 pounds of wool in the same length of time, which exceeds five times the amount consumed in all the New England factories in the same period, and more than the entire product of the country. Over 800,000 persons could be employed by the mills to which this water might give power. Furthermore, navigation extends to the foot of the falls, and railroads from the south, east, and west, concentrate upon its banks. Near at hand are the pine forests of the State, and of Wisconsin, to furnish lumber; west of it is a belt of hard wood, fifty miles wide, with spurs extending in every direction. It is within the great wheat belt of the country, and within a field producing 10,000,000 bushels of this grain per annum. It is in direct communication, by a natural water-course and by rail, with the cotton districts of the south-



ern States, and far removed from the great competing manufactories of the East. To utilize the waters below the falls, shafts and tunnels have been constructed on the inland side of a canal, which, running along the river thirty-five feet above its banks, shut out that portion from mill power. By these means the waters of the canal are discharged through flumes in perpendicular columns thirty-five feet in height, thus creating a new water-power, and making practical mill lots on this inland side of the canal. The number of mills at this place in 1867 was: lumber mills, 14; flouring mills, 13; planing mills, sash, blind and furniture factories, 18; oil and woolen mills, 5; iron works, 10; miscellaneous, 6—total, 66.

KANSAS is one of the youngest States in the Union, yet its progress has been more rapid than any west of the Mississippi. It has an estimated area of 81,318 square miles, or 52,043,520 acres. Of this 48,318 square miles, or 30,923,000 acres, have been surveyed, leaving an area of 33,000 square miles, or 21,120,000 acres over which the lines of public surveys have not yet been extended. This region may be divided into agricultural lands, 38,977,520 acres, including 10,800,000 acres that partake of both agricultural and mineral characteristics, and strictly mineral lands, 1,920,000 acres. The minerals are principally iron and coal, no precious metals or copper having yet been found. The grazing lands are principally west of the ninety-ninth degree of longitude from Greenwich, covering an area of 13,066,000 acres. No swamps or overflowed lands or mountain ranges exist in Kansas, the land rising in bluffs or rolling prairies. The surveys have not progressed rapidly in the western part of Kansas within the last year, owing to Indian hostilities. On the 6th of September last, five men of a surveying party were attacked by eleven Cheyenne Indians, who made desperate attempts to kill the party, but without success. The yet unsurveyed lands lying between the Arkansas River—the north boundary of the Osage trust lands—and the first guide meridian west, are very fertile and well adapted to cultivation, and settlements are being rapidly made on this tract.

Immigration to Kansas during the past year has been unprecedentedly large, the number being estimated at one hundred thousand persons; settlements having been made in the far western part of the State, beyond the lines of existing surveys. In the extreme western and southwestern portions there is a small proportion of inarable land, embracing an area of about 576,000 acres; but even this tract is susceptible of reclamation by planting forest trees and by irrigation. The area of the timbered lands is two million five hundred and sixty thousand acres, lying principally along the rivers and streams.

The climate of the State has undergone remarkable changes; every year the rain increases, the aggregate fall from the 1st of January to the 1st of September, 1869, being six inches more than that for thirty-four years past. These changes are owing to the culture of the soil and planting of forest trees and orchards. For this reason, also, the forests of the State are increasing, resulting in greater productiveness of the soil, and more equal distribution of moisture. Six years ago all the land west of the twenty-first degree of longitude was regarded as subject to drought, and unfit for cultivation. Settlers were then unable to cultivate enough for home consumption; now, the same country produces forty to fifty bushels of grain per acre. This is a part of the once so-called "Great American Desert," which is being settled by an industrious population, who, by planting shrubbery, hedges, forest trees, and orchards, are making it one of the most productive regions of our great West.



The crops of the present year have exceeded those of any previous period, both in quantity and quality. Wheat, corn, oats, barley, and potatoes, have yielded most abundantly, and a large surplus for exportation is anticipated. The fruit crop has also been large, particularly in the more common varieties which enter so extensively into domestic economy, such as apples, pears, and grapes. Large vineyards exist in Doniphan, Leavenworth, Douglas, and Riley Counties, where much attention is given to the manufacture of wine. Within the last year two thousand person have settled in the State under the provisions of the homestead laws.

Immense beds of iron ore are reported to have been discovered three miles west of Pond Creek, in the western part of the State, near the termination of the Kansas Pacific railroad. Iron beds also exist in Central Kansas, but, owing to the mixture of the ore with sand, most of it is useless for manufacturing purposes. Kaolin has recently been discovered within two miles of Sheridan, a town on the line of the Pacific railroad, in the western part of the State. Lignite is being mined on the Smoky Hill Fork and its tributaries, and is extensively used by the railroad company as fuel. In the eastern counties coal of a superior quality exists in large quantities, and is now mined to a considerable extent. Marble has also been discovered by the Leavenworth Coal Company in shafting for coal, at a depth of three hundred feet; the stratum is twelve feet thick; the stone is the Pearl Spa marble, being less destructible than the Italian. At Junction City a superior permian limestone is extensively quarried.

There are nineteen cities and two hundred and ninety-seven towns in the State. The aggregate length of railroads completed is seven hundred and forty-four miles; in process of construction two hundred and eighty-five miles; and projected five hundred and eighty-seven miles. Of the roads in progress of construction, at least one hundred miles will be completed by the 1st of January, 1870. An iron railroad and wagon bridge is one of the improvements being built across the Missouri River at Leavenworth; it is anticipated that it will be finished by April, 1870.

Education is flourishing. Greater attention has been paid to mental improvement in Kansas than in any other new State. There are 1,372 school districts in the State, with 45,140 pupils, of whom 1,940 are colored. There are 1,601 teachers, whose aggregate salaries amount to \$203,878. The number of schools is nine hundred and fifty-three; and the school buildings are valued at \$813,062. Besides these public schools Kansas has a State university, agricultural college, normal school, blind and deaf and dumb asylums. Baker University, Washburne College, Dane University, Female Seminary, Wetmore Institute, Ottawa University, and Highland University, are sustained by the several religious denominations. The Roman Catholics have two colleges, male and female, at Leavenworth, and mission schools at St. Mary's, St. Bridget, and the Osage Missions.

The State abounds in wild game of the prairies, and the rivers teem with fish—the black bass being very abundant. The mean temperature is fifty-five degrees—an average more favorable to the products of the soil than is experienced by other States. The winters are mild, snow seldom falling, and in the southern portions of the State live stock may be fed on the grass of the prairies at all seasons of the year.

With these great attractions and the opening of rapid communication with all parts of the Commonwealth through the medium of railroads,

Kansas may be considered as being in a highly prosperous condition, and destined, as her resources are developed, to contribute material wealth to the nation in greater ratio than has heretofore been anticipated. Land offices for the disposal of the public domain are situated at Topeka, Junction City, and Humboldt, to which applications should be addressed.

NEBRASKA.—This State, although in its infancy as a member of the Union, has high anticipations of rapid growth and prosperity, the soil being prolific in the production of articles most requisite for the food of man.

The total area of the State is 75,905 square miles, equal to 48,636,800 acres, extending west from the Missouri River to the twenty-fifth and twenty-seventh meridian of longitude west from Washington, and south from the forty-third to the fortieth degree of latitude. This region of country, once referred to on our maps as a part of the "Great American Desert," is almost entirely prairie, with an undulating surface. Science suggests that the country was formerly a great inland sea. Near the base of the Rocky Mountains is found a sandy belt of irregular contour, partially defining the outline of the former water surface. In the western part of the State are sand hills, or dunes, which have been raised by the prevailing winds piling up the dry and loose materials of which they are shaped into their present picturesque forms. These hills have their elongated slopes to the winds, the opposite sides being quite steep, presenting the appearance of high billows, all apparently drifting in the same direction.

The Missouri, which forms the eastern limit of the State, flows through a vast bottom bounded by high bluffs of trap clay; the channel of the river inclining to the western shore, leaves the great bulk of the bottoms on the eastern or Iowa side. The river itself is a series of sand bars, and although navigable for thousands of miles, yet the constantly changing channel creates necessity for skillful pilots. The river seems to follow along the line of the State through a rupture in the underlying rocks—the width of this fissure is yet unascertained. The best portion of the State is the valley of the Platte, which extends from one to two hundred miles on each side of that broad and swift but shallow river.

Passing eastward, the first stream paying tribute to this beautiful valley is the Wood River, flowing in from the north, opposite Grand Island. The next is the Loup Fork, with its many branches, extending far into the western part of Nebraska, and which empties its waters at Columbus. Lastly, the Elkhorn, rising in the northern part of the State, commingles with the Platte at least two hundred and fifty miles southeast of its source, and within twenty-five miles of the point where the Platte itself, after coursing its way from the mountains of Colorado—the backbone of the continent—is absorbed by the Missouri. With the exception of Salt Creek and its tributaries, no stream flows into the Platte on the south, the waters on that side running south, even though in some places rising within ten to fifteen miles of its banks; thus indicating considerable elevation in the ground immediately back from the river, and from thence a gradual declination to and beyond the Kansas.

Thus is the northern and central portion of the State watered, while in the south are the Great and Little Nemaha, the Big and Little Blue, and the Republican, with their many tributaries; all these streams are deep and narrow when compared to the Platte. The country is marked by three classes; bottom land, table, and inarable. The first are those lying along the streams, having a width of from one to twelve miles,



with occasional heavy growth of timber, sometimes extending over the bluffs to the table lands.

Wood in Nebraska is not abundant, consisting of few varieties; the cottonwood is the most considerable. Oak, elm, hickory, and hackberry—the last a hard wood but little known in this part of the continent—are also found. The soil of the arable portion of the State is a rich loam with an impregnation of lime, this soil varying from two to ten feet in depth, the deepest being of course on the bottom lands, which receive the debris from the bluffs. This loam is free from gravel, easily plowed, very pliable, resisting unusual wet or drought, and peculiarly adapted to the growth of corn and wheat. The garden vegetables are in abundance, attaining an unusual size. Wild plums, grapes, cherries, and hops, grow in profusion, and in the southeastern part of the State apples, peaches, and pears, are successfully cultivated.

Nebraska is destined to be an agricultural and grazing State, millions of acres being available for such pursuits, and millions more for grazing cattle. Herds are driven from Kansas to fatten on the nutritious grasses. Minerals have not yet been found to any extent. Coal has been discovered in some parts of the State, several companies being engaged in mining, but it has not yielded sufficient quantities for the demands of the population. The deficiency, however, is supplied by the Pacific railroad from the mines of Wyoming.

Building limestone has been discovered, and is in daily use for the erection of new buildings, several varieties existing of a whitish, bluish, and sometimes of a cream color; also a dark yellowish gray sandstone, and a dark red freestone. The limestones are soft when quarried, and easily dressed, but harden on exposure to the atmosphere, being evidently a continuation of the magnesian limestone, or permian rock, so abundant in Kansas. Clay, for the manufacture of brick, is easily obtained, and this branch of business is being successfully followed.

The climate of the State is dry and exhilarating. The spring and fall are the rainy seasons, affording sufficient moisture for the growths of the soil, but in the summer and winter the weather is dry. The heat of the summer, however, is tempered by the prairie winds, and the nights are quite cool. The fall months of the year are extremely pleasant, and cold weather seldom commences before the latter part of December.

Beyond the twenty-second degree of longitude the lands are not available for agricultural purposes, except in the bottoms. East of this line not less than twenty-five million acres are available for stock, grain, or general crops, thirteen million seven hundred thousand being first-class, three millions of the second class, and eight million three hundred thousand third-class lands. The first embraces the bottoms and the equally productive prairies; the second comprise prairies, which, although quite productive, are broken by water-worn drains, while the third-class land is subject to drought and is of a sandy character.

Nebraska has extensive saline deposits in the southeast, at the head of Salt Creek, within a radius of ten miles of Lincoln, the capital of the State. The springs are twelve in number. In one of the basins a well is to be sunk one thousand feet, unless sufficient strength is found at a less depth. The main basin embraces three hundred acres. The salt is made entirely from surface water containing 16 $\frac{3}{4}$  per cent. It is estimated that one thousand barrels of salt per day can be made by solar evaporation, at a cost of twenty-five cents per barrel. It is the purest in the world, being 98 $\frac{3}{10}$  per cent. salt, an advantage over the celebrated Turk's Island salt of 7 $\frac{3}{10}$  per cent.

The grazing region of the State comprises twenty-three million acres,



twelve million five hundred thousand of which are well watered, as are also ten million five hundred thousand in the spring, but dry in the summer. Few swamps exist in the State so far as the surveys have extended, the area thus far being only sixty-one thousand acres, or three townships. Forty-nine thousand of this extent are reclaimable; the remainder can be made valuable only at considerable expense. The sterile land of the State, excepting the sand-hills, may be made productive with irrigation by artesian wells. The underlying strata across this portion of the State have an inclination of 6' or 7', which allows cuttings that will bring in a flow of water from the Rocky Mountains; yet, owing to the nearly vertical dip of the aqueous rocks of that region, a considerable depth must be obtained before any large supply can be reached. The great altitude of the mountains above the plains gives reasonable hopes, however, that the introduction of these wells will prove successful in obtaining an adequate supply for the more deficient portions of the plains. Another means may be effected by damming the cañons, and thus allowing them to fill with the surface waters accumulated during the rainy seasons. This plan has been adopted along the Burlington and Missouri railroad in Iowa, and proved successful. To insure permanency in the dams the depth of water in these reservoirs must be well regulated, as the strains may become to great and the dams give way.

The requirements of immigration, on reaching this part of the State, will no doubt find means to render it as fit for the support of man as more favored portions of the country. There are twenty-two cities and two hundred towns in the State, the total estimated population being one hundred thousand.

The value of merchandise is estimated at \$2,200,000; horses, \$2,000,000; cattle, \$1,350,000; mules and asses, \$214,000; sheep, \$46,500; swine, \$100,000, and the total valuation is \$42,000,000. The construction of railroads is receiving attention from the community. The nature of the country offers excellent facilities for building these great thoroughfares; but small cuttings are necessary, there being no mountains. No less than thirty-six lines have been projected, extending from Omaha, Nebraska City, Lincoln, Sioux City, and other points, to Columbus, Frémont, Grand Island, Fort Kearney, and points on the Union Pacific railroad; the total length of these is four thousand and sixty-four miles, with a capital of \$118,650,000. By the completion of the Union Pacific and Sioux City branch roads the State now has four hundred and eighty-eight miles of railroads, and of the others two are being graded to the extent of one hundred and fourteen miles. The completion of these roads, by means of which the whole of the present settled portion of Nebraska will be reached, must eventually induce a tide of immigration to that country and rapidly develop its resources; and by giving quick and cheap transport for products, will materially enhance the present value of the personal and real property, adding to the wealth, growth, and prosperity of the State, in which there are 40,954,792 acres of public lands yet to be disposed of. District land offices are located at Omaha City, Beatrice, Lincoln, and Dakota City, to which application for the entry of public lands should be addressed.

DAKOTA.—This Territory, one of the extreme northern political divisions of the Union, was organized March 2, 1861. It lies between latitudes 42° 30' and 49° north, and longitudes 96° 25' and 104° west from Greenwich, being bounded on the north by the British Possessions, on the east by Minnesota and Iowa, on the south by Nebraska, and on the west by Montana and Wyoming. Its length from north to south is 414 miles,

and its greatest width 360 miles, embracing an area of 150,932 square miles, or 96,595,840 acres.

This extensive region is traversed from northwest to southeast by the Missouri River, and abundantly watered by its many tributaries, of which the Big Sioux, Vermilion, Dakota, White Earth, Big Cheyenne, and Little Missouri are the principal ones. The Red River of the North courses along one-half of the eastern boundary of the Territory and empties into Lake Winnipeg in British America, from whence its waters find an outlet through Nelson's River into Hudson's Bay. The country is pleasantly diversified by numerous lakes abounding in the finest fish. The largest of these lakes is the Minne Wakan, or Devil's Lake, which has a surface of about four hundred square miles, its waters being so brackish as to be unfit for general use; but it is said that the buffaloes, which roam over this country in vast numbers, are very fond of it.

Dakota presents a great variety of surface. The country rises gradually westward, culminating in the Black Hills in the extreme western portion of the Territory. In the southeastern part is a plateau or range of highlands called the *Coteau des Prairies*, which has an elevation of fourteen hundred feet above the sea. This plateau extends for nearly two hundred miles along the eastern borders of the Territory, while a similar table-land of less height occupies the middle and northern portions.

Although a large portion of the surface of this Territory consists of prairie, there is a supply of timber sufficient for the use of settlers in nearly every locality, and the margins of most of the rivers are fringed with a fine growth of different varieties of forest trees. In the neighborhood of the Black Hills extensive forests of excellent pine and other timber are found.

The basin of the Red River of the North consists mostly of open grassy plains, affording an abundant and nutritious pasturage through a great portion of the year, and, with little labor and expense, an ample supply of food may be secured for the keeping of live stock during the severe winters of this high northern latitude. This region has long been noted for its extensive fur trade, and although its agricultural capacities are of the highest order, the aversion of the fur-traders and trappers to the extension of the settlements has hitherto prevented the immigration which would otherwise, doubtless, have tended toward this favored portion of the Territory.

The climate of Southern Dakota is comparatively mild, but in the northern portions the winters are long and severe. The annual precipitation of moisture is twenty inches, and so distributed throughout the year as to be amply sufficient for the perfect maturity of the crops. The southern and eastern portions of the Territory are rapidly filling up with an energetic and industrious population. Indeed, so rapidly has immigration poured into the Territory that the public surveys have failed to keep pace with the advancing column of settlers.

The climate and soil of Dakota are exceedingly favorable to the growth of wheat, corn, and other cereals, while all of the fruits and vegetables raised in the northern States are here produced in the greatest perfection. The past season has been one of real prosperity among the farmers of the Territory, the surveyor general having stated in his annual report that there was a much larger area under cultivation than in any previous year. The wheat crop varied from twenty to forty bushels to the acre; the Scotch Fife, Mediterranean, and Black Sea being the varieties generally sown, and the first-named is highly commended, being deemed more productive by about twenty per cent. than other kinds. Oats have produced from fifty to seventy bushels to the acre and are of



excellent quality. The extensive prairies of Dakota, clothed with different varieties of nutritious grasses, afford great facilities for the raising of sheep and cattle, and quite a number of persons are already largely engaged in this occupation.

Discoveries of gold, silver, copper, and coal, have been made in the Black Hills, and on the Big Sioux River, in the southeastern part of the Territory, there are extensive deposits of coal of a good quality. Excellent building stone is found in many localities, and there are immense beds of salt in the northern part, near Devil's Lake.

Yankton, the capital and seat of the surveyor general's office for this surveying district, and Vermilion, both on the Missouri River, are the principal towns. The land office for the disposal of the public lands in Dakota, under various congressional enactments, is located at Vermilion. The white population of the Territory is estimated at forty thousand.

Under the appropriation of \$20,000 for the survey of the public lands in Dakota during the fiscal year ending June 30, 1869, the surveyor general reports the survey of the eighth and ninth guide meridians, the first and second standard parallels, and the township and subdivision lines of fifty-seven townships and fractional townships, including those fractional townships bordering on the Yankton Indian reservation, the boundary of which has been retraced. The act of March 3, 1869, appropriates \$15,000 for continuing the public surveys in Dakota, and the surveyor general was instructed to expend the amount where most needed by actual settlements, or where immigration was rapidly tending.

The treaty of February 19, 1867, with the Sisseton and Waupeton and Cuthead bands of Yanktonais of Dakota or Sioux Indians, requiring the survey of their reservation situated west of Lake Traverse and Big Stone Lake, a contract was entered into by this office for the execution of the work, and the deputy surveyor was instructed to establish the boundary lines of the reservation, and then to extend the standard, township and subdivisional lines over the reserve, in accordance with the public-land system of surveys. By direction of the Secretary of the Interior, the deputy was subsequently instructed to subdivide the reservation into forty-acre tracts, so that allotments may be made to the Sisseton and Waupeton Indians under the provisions of the third, fourth, and fifth articles of the treaty with them; the allotments as decided by the department proper to be made in forty-acre tracts of timber land, and the residue of prairie or agricultural land.

During the fiscal year ending June 30, 1869, there were surveyed in Dakota 1,347,218 acres, of which 400,484.94 are Sisseton and Waupeton lands, reserved by the third article of the treaty of February 19, 1867, with said Indians. The total area thus far surveyed in this Territory is 4,878,948 acres, leaving an area over which the lines of public surveys are yet to be extended of 91,716,892 acres. The area of lands in Dakota undisposed of, June 30, 1869, was 90,890,000.90 acres.

#### THIRD DIVISION—MINERAL AND GRAZING REGION.

This division embraces the State of Nevada, the Territories of New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, and Arizona. It contains 861,716 square miles, or 555,338,240 acres, an area considerably exceeding one-third of European Russia. Its agricultural character is varied and peculiar, being mostly suited to grazing rather than to cereal production. Its productive areas are found in zones, interspersed with mountain and desert tracts. Portions of the country are known to be



exceedingly fertile, while still larger portions are well adapted to pastoral industry. The general information in regard to these topics that has been collected hitherto is meager, but sufficient to give very great encouragement as to the agricultural resources of this region. The unproductiveness of the desert surfaces is to a considerable extent the result of aridity of climate, which has been already alleviated in particular localities by forest and tree culture. The practice of irrigation has revealed in this arid soil elements of the highest fertility. The general character of the surface is mountainous, with large plateaus of high general elevation above the sea. Timber is found scattered in belts, interspersed with wide treeless areas. The general character of the industry of this section of country, however, must continue to be mineral. In every one of these States and Territories large deposits of the precious and of the useful minerals have been discovered and worked with great success. The silver product of Nevada is especially remarkable. The gold product, though inferior to that of the Pacific coast, has made an important addition to the circulating medium of the world. Coal, iron, and copper, have also been found in different localities. The expansion of mineral industry in this region is one of the great facts of American civilization. The details will be found in the separate articles treating of the divisions in this connection. The civilized population already found in this region is at least half a million, and rapidly increasing. The amount of public land still open to appropriation is 516,438,958 acres. Details in regard to each are exhibited in the following, beginning with

NEW MEXICO.—This Territory, formerly constituting a portion of the Republic of Mexico, and ceded to the United States by the treaty of Guadalupe Hidalgo, lies immediately south of Colorado, and is bounded on the east by the State of Texas, on the south by Texas and Mexico, and on the west by the Territory of Arizona. Within these limits is embraced an area of 121,201 square miles, or 77,568,640 acres.

A large portion of this extensive tract of country consists of high tablelands traversed by many ranges of mountains, and now and then dotted with isolated peaks. The general direction of the mountain ranges is north and south. Between these ranges are many broad and fertile valleys; the principal one, the valley of the Rio Grande, extends from the northern to the southern limits of the Territory. The Sierra Madre Mountains form the western limit of this valley, and the Jumanes, Del Cabello, with other ranges of the Rocky Mountains, bound it on the east. Considerably more than half of the territory lies east of the Sierra Madre. In the eastern half, and diverging from the main chain of the Rocky Mountains, are the Guadalupe, Sacramento, and Organ Mountains, and the Sierras Blanca, Hueca, and other divisions, forming the western boundary of the Pecos Valley. West of the Sierra Madre is a series of detached ranges as yet imperfectly explored, though a number of exceedingly fertile valleys are known to exist in this part of the Territory. Northwest from Santa Fé, in the Sierra Madre range, is Mount Taylor, rising to a height of ten thousand feet above the valley of the Rio Grande, the latter being between five and six thousand feet above the level of the sea in the northern part, four thousand eight hundred at Albuquerque, in latitude 35°, and three thousand feet at El Paso, Chihuahua, near the southern boundary of the Territory. The mountain chains bordering the valleys of the Rio Grande and Pecos Rivers, south of the latitude of Santa Fé, have a general altitude of six or eight thousand feet, while near the northern limits of the Territory they attain a height of ten to twelve thousand feet above the level of the sea, their summits

being covered with perpetual snows, and presenting to the tourist and the artist scenes of indescribable beauty and grandeur. The country west of the Rio Grande consists principally of lofty table-lands or mesas, interspersed with peaks of volcanic origin, and separated from each other by broad valleys, through many of which wind streams of considerable magnitude, their margins fringed with cottonwood and other timber, affording excellent opportunities for the culture of the soil and raising live stock. The Rio Grande del Norte, the largest river of the Territory, takes its rise in the mountains of Colorado, and after crossing the Territory in a longitudinal direction, forms the boundary between Texas and Mexico and flows into the Gulf of Mexico. The Rio Pecos drains the southeastern part of New Mexico, and the Canadian, a branch of the Arkansas, the northeastern part. West of the Sierra Madre the country is drained by the Gila, Rio Puerco, and the San Juan, affluents of the Colorado of the West. None of these rivers are important for navigation, being seldom deep enough for any craft but canoes and flat boats.

There exists great variation in the climate of New Mexico; in the northern part, among the mountains, the winters are long and severe, but not so subject to sudden changes of temperature as in more humid climates. The general range of the thermometer throughout the year is from  $10^{\circ}$  to  $75^{\circ}$  above zero, Fahrenheit. In the southern part of the Territory, near El Paso, the temperature is mild, rarely falling below the freezing point. The low latitude of the Territory is balanced by its great elevation above the sea. The sky is usually clear and the atmosphere remarkably dry, the whole Territory being considered one of the healthiest localities in the Union. The salubrity of the climate is one of the most interesting features in the character of New Mexico. Maladies so common in the valley of the Mississippi are almost unknown here, and persons are seldom afflicted with pulmonary difficulties. From Santa Fé north a sultry day is of rare occurrence, and the nights are uniformly cool. In the southern part of the Territory the rainy season is in July and August. The table-lands, hill-sides, and valleys, are abundantly supplied with a variety of nutritive grasses, which, being cured by the operation of the climate, afforded excellent pasturage throughout the year. The most valuable and widely distributed of these is the gama grass, or "mezquite;" its peculiar value consisting in its adaptation to all the requirements of an arid climate. It grows during the rainy season and ripens a large quantity of seed as the dry season approaches, while the leaf and stem retain most of their nutritive qualities in drying, forming superior feed for grazing animals during the entire season. The herdsmen and shepherds of New Mexico being thus furnished with natural pasturage through the winter months, have a great advantage over the farmer and stock-raiser of the northern and eastern States, who are obliged to expend a great portion of their time and labor in the preparation of food to sustain their animals during the winter months. The wide range afforded by the extensive pastures of New Mexico seems to have a very beneficial effect on the health of sheep and cattle, as the diseases common to many localities are here almost unknown. The horses are remarkable for their powers of endurance, and the beef and mutton are celebrated for their excellence. Beef, mutton, and venison, are cured without the use of salt, the meat being simply hung up in the open air, where it is soon perfectly dried, and no other preparation is necessary.

Although a portion of the Territory is unsuited for cultivation, the valleys of the rivers, and even the table-lands, where irrigation is practicable, are exceedingly productive. In the valleys

Indian corn, wheat, barley, and oats, yield abundant crops, while apples, peaches, melons, apricots, and grapes, are grown in great perfection. The grape is especially productive, and the quality of the wine produced is excellent. In the southern portion of the Territory many of the semi-tropical fruits can be raised without difficulty. Owing to the necessity of irrigation, agriculture is principally confined to the valleys of the constantly flowing water-courses. In some localities the crops are occasionally cut short by the failure of the streams in a long-continued drought. Where water is abundant, however, the crops are sure and remunerative, and the husbandman, regulating the supply of moisture himself, need never have his crops destroyed by freshets, and much less permit them to suffer from drought.

The usual method of irrigation is to construct a main ditch—*acequia madre*—of sufficient capacity for an entire town or settlement, which is made and kept in repair by the public for the common benefit. This ditch is conveyed over the most elevated part of the valley, which is usually next to the hills. From this each farmer runs a ditch in a similar manner over the highest part of his field. Where there is a superabundance, the farmer can water his crops at pleasure; but when the supply is limited each farmer has his day, or portion of a day, allotted to him for irrigation, and at no other time can he avail himself of the main ditch. After the water is let into the minor ditch it is dammed first at one point and then at another, thus overflowing one section at a time, and by reducing eminences and filling depressions is made to flow evenly over the surface. By this operation an irrigator will water about five acres per day on perfectly level ground, though not more than half as much can be accomplished on an uneven surface.

Forests of pine, cedar, spruce, and other kindred trees, cover the mountain ranges. On the foot-hills are found extensive tracts of piñon and cedar, while a variety of deciduous trees fringe the margins of the streams, cottonwood and sycamore being the most abundant, and in southern New Mexico groves of oaks and walnut are met with.

Veins of the precious metals and rich deposits of copper, iron, and coal, are found in many parts of the Territory, and new discoveries are constantly being made. The mining interests of the country are being rapidly developed, and the yield of gold and silver during the past year presents a very favorable contrast with former years. The most thoroughly explored regions where the precious metals have been found are the Old and New Placers, Pinos Altos, Cimarron mining district, Arroyo Hondo, Manzano, and Organ Mountains, Sierras Blanca, Carriza, and Jicarrilla, and the Mogollon and Magdalena Mountains.

In reference to these several mineral districts the surveyor general reports that the region called Old and New Placers, situated in Santa Fé and Bernalillo Counties, extends over about two hundred square miles of territory, three-fourths of which is embraced by the Cañon del Agua, Ortiz, and San Pedro private land claims. In this district a great number of lodes of gold-bearing quartz have been discovered, the principal ones being the Ortiz, Ramirez, Mammoth, and Candelaria. Besides these there is a large number as yet undeveloped. A ditch or canal seventy miles in length is projected from the Pecos River to these mines, which will furnish an adequate supply of water throughout the year for the working of the mines, the full development of which will thus be secured, and doubtless a very large yield of gold obtained.

The New Mexican Mining Company at the Placer de Dolores runs about forty stamps, working on ore from the Ortiz, yielding from twelve to fifteen dollars per ton, and at the Placer de San Francisco a ten-



stamp mill obtains thirty-five dollars per ton from ore taken from the Santa Candelaria lode. In Grant County, the Pinos Altos mining district embraces within its limits two hundred square miles, and contains mines of gold, silver, and copper. The Pacific, Pacific No. 2, Arizona, Atlantic, Langston, and Aztec, are the principal gold mines. The veins are from a few inches to four feet in width, and in some of them the ore is exceedingly rich. Thirty pounds of quartz recently taken from the Langston lode averaged fifty dollars to the pound. The silver ores in this district yield from twenty to thirty dollars per ton. The copper mines are found in a belt of feldspathic rock, about two miles in width and twenty miles in length. The Santa Rita mine, producing about three thousand pounds of copper per week, is the only one at present in operation. The ore from the Stephenson mine, in the Organ Mountain, yields eighty per cent. of lead, from each ton of which is extracted fifty dollars' worth of silver. In the Cimarron district, embracing four hundred square miles, a ditch thirty-seven miles in length has been constructed, yielding a limited supply of water for the working of the gulch mines. In this district is situated the celebrated Maxwell lode, which has produced as high as fifteen thousand dollars in a single week, and no ore taken from this lode has yielded less than thirty dollars per ton.

In the Manzano Mountains mines of gold, silver, and copper are found. The Carson lode, which has been opened to a depth of sixty feet, furnishes from sixty to twelve hundred dollars in gold per ton of ore. In the Sierra Blanca a number of rich lodes have recently been discovered, which give promise of large product when developed. Other mines have been discovered in various parts of New Mexico, but, owing to the difficulty of obtaining a sufficient supply of water, as well as lack of capital on the part of the discoverers for the erection of reduction works, many of them which would otherwise be sources of great profit are as yet undeveloped.

Under the appropriation made by Congress for public-land surveys in New Mexico for the fiscal year ending June 30, 1869, contracts were made for the extension of the second guide meridian south twenty-four miles, and the extension east from it of the first correction line north through three ranges, as well as for the survey and subdivision of several townships along the Pecos River, north of Bosque Redondo Indian reservation, which surveys will doubtless exhaust the \$5,000 appropriated for the Territory. The surveyor general reports that since the commencement of government surveys in New Mexico sixteen Indian pueblo grants have been confirmed, embracing an area of 453,427.48 acres, and fourteen private land grants, containing 1,846,246.78 acres, making in the aggregate 2,299,674.26 acres. The number of townships and fractional townships surveyed since the first institution of public surveys in the Territory are one hundred and forty-seven, embracing an area of 3,024,935.94 acres, of private claims 80,955.83 acres, and of reservations 8,840 acres, or an aggregate of 3,114,731.77 acres.

The public lands of New Mexico have not as yet been brought into market. By act of Congress approved March 3, 1869, an appropriation of \$5,000 was made for the survey of the public lands in New Mexico. By our instructions of the 15th May, 1869, the surveyor general was directed to make contracts under this law to the extent of the means provided, and to select as the sphere of his operations those localities where the public interests might be best subserved, and to extend the standard lines as far as practicable so as to include mineral regions, and form the necessary basis for the survey of mineral claims,

as contemplated by the mining act of July 26, 1866. He was also instructed to cause the claims to be surveyed which were confirmed by the acts approved February 9, 1869, "To confirm the title to certain lands to the pueblo of Santa Ana, in the Territory of New Mexico," and March 3, 1869, "To confirm certain private land claims in the Territory of New Mexico, upon the application of the grantees for such surveys, and their depositing sums sufficient to defray the expense thereof, as contemplated per act of June 2, 1862."

On the 29th of April, 1869, a contract was entered into by this office for the survey of the Navajo Indian reservation, lying partly in New Mexico and partly in Arizona. The deputy was instructed to establish the out-boundaries of the reservation astronomically, in accordance with the description given in the second article of the treaty of June 1, 1868, (United States Laws, 1867-'68, page 154.) The surveyor was first to repair to the site of old Fort Defiance, and from thence survey that portion of the southern boundary of the reservation lying east of the fort, to the point of intersection with old Fort Lyon, which longitude constitutes the eastern boundary of the reservation; thence north to the northern boundary of New Mexico. From Fort Defiance the south boundary was to be extended west to a point whence a due north line will embrace Cañon de Chilly within the reservation. From this point the west boundary was to be surveyed due north to the thirty-seventh parallel of north latitude, and thence the northern boundary was to be extended to the northwest corner of New Mexico. The deputy was further instructed to survey and subdivide, in accordance with the public land system, those portions of the reservation suitable for agricultural purposes to the extent deemed necessary by the local Indian agent. The amount appropriated by Congress for the survey of this reservation was \$36,220. The survey of the northern boundary of New Mexico on the thirty-seventh parallel of north latitude, contracted for under the authority of the act of Congress approved March 2, 1867, has been completed and the returns made to this office. This line, extending from the 103d to the 109th degree of longitude west from Greenwich, was established astronomically and marked on the face of the earth in a durable manner. The exact length of the line is three hundred and thirty-one miles sixty chains. The area in New Mexico undisposed of is 70,704,558 acres.

I would respectfully renew the recommendation in the following extract from my annual report for 1867, in regard to the adjudication of private land claims in the extreme southern portion of New Mexico:

"By the eighth section of the act of 22d July, 1854, (Statutes, vol. 10, page 309,) authority is given for submitting to the surveyor general for report to the department and submission to Congress, all Spanish and Mexican titles claimed as valid under the treaty of 1848, at Guadalupe Hidalgo, between the United States and Mexico; but as there is no provision under which official cognizance is required to be taken of any foreign titles falling within the limits of what is known as the Gadsden purchase by treaty of 1853, concluded at the City of Mexico, it is of the first importance that all such titles in New Mexico and Arizona shall be speedily and definitely adjudicated. To this end it is recommended that authority of law be given for initiating processes to obtain confirmation by petition to courts, that the time for filing and prosecuting to final decree shall be specified.

"If, however, it should be preferred to settle such claims otherwise, it is recommended that the provisions of the act of 22d July, 1854, shall be so enlarged as to include titles under treaty of 1853; that a period

shall be fixed within which the evidence of all such shall be filed in the office of the surveyor general at Santa Fé, barring in law and equity all not filed within the period of limitation; making it the duty of the surveyor general to render his decisions not only as to the validity of claims, but the limits and area thereof; requiring those decisions to be immediately reported to the General Land Office, and investing a board, consisting of the Secretary of the Interior, Attorney General, and Commissioner of the General Land Office, with power to enter final decree of confirmation or rejection, yet restricting the extent as to area in which decrees of confirmation shall be rendered by the board, and requiring all in excess of that extent to be referred for final action to Congress."

COLORADO.—Lying south of Wyoming is the Territory of Colorado, which has been aptly called the Switzerland of America; it being an elevated and mountainous country, with valleys five and six thousand feet above the sea level, surrounded by mountains rising six and eight thousand feet higher. It is a country rich in gold, silver, copper, iron, and coal, besides possessing broad belts of prairie well adapted for grazing and agriculture, and parks of magnificent timber growing upon the richest soil.

Colorado extends two hundred and sixty miles north and south, and three hundred and seventy-five miles east and west over the grand region of country called, from its central position and superior elevation, "the backbone of the continent." It is bounded on the north by Nebraska and Wyoming, on the west by Utah, on the south by New Mexico and Indian Territory, and on the east by Kansas and Nebraska.

The first important settlements within the boundaries of this Territory were made in 1859, following the discovery of gold on Cherry Creek at the point where Denver City now stands. The territorial organization was authorized by act of Congress approved March 2, 1861, the portion lying east of the Rocky Mountains having been taken principally from Kansas and Nebraska, that lying west from Utah, and one degree of latitude on the south from New Mexico. Its area is more than 104,500 square miles, or nearly thirteen times that of Massachusetts, covering three natural subdivisions of the face of the country, severally called the plains, the parks, and the mountains. The plains compose the section of the Territory extending from the eastern boundary westward to the foot-hills of the Sierra Madre, being a high rolling plateau from four thousand to five thousand feet above sea level, gradually rising toward the mountains and richly watered by their streams; the strips along the rivers are capable of producing the finest harvests of grain, fruit, and vegetables; the whole already constitutes one of the most luxuriant pastures of the continent, and is susceptible of the most successful cultivation with the aid of irrigation, for which its many streams afford excellent facilities.

The section of the plains lying near the South Platte, in the northeastern part of the Territory, is an iron region abounding in red hematite ore. Magnetic and hematite ores are also found in sections of the mountain country, as in the vicinity of the Golden Gate in Jefferson County, and it is conjectured that the mining and manufacture of this metal will soon be extensive in Colorado, furnishing machinery for mills and mines, implements for agriculture and the lumber trade, and rails for the iron roads.

Approaching the eastern foot-hills of the Sierra Madre are extensive outcroppings of coal, the beds varying in thickness from thirty to fifty feet; this deposit being stated by geologists to underlie a large portion



of the plains, sometimes extending to the eastern boundary of the Territory, forming, with the coal beds of Wyoming, a vast coal field of five thousand square miles. The variety of the coal is that known as lignite, being well adapted to the purposes of household economy, as well as for manufactures and railroads. The mines are already extensively worked in Boulder, Jefferson, Arapahoe, and Douglas Counties, and better facilities for local transportation are alone required to render this one of the leading industries of Colorado, supplying a want now greatly felt in other sections of this and the adjoining Territories, as well as the western parts of Kansas and Nebraska, where timber is scarce, and coal either not existing or of inferior quality. A large vein of albertite coal, varying from ten to twenty feet in thickness, has recently been discovered on White River, in Summit County, with evidences of its extending sixty miles in length by twenty-five in width. This variety resembles cannel coal, burning with great readiness and intense heat, consequent upon the large quantity of petroleum which it contains; the per cent. of carbon is from 58.70 to 59.20, and the texture of the coal is nearly as hard as anthracite, but it is more friable.

The plains of Colorado embrace three-sevenths of the Territory, or about 30,000,000 acres, of which at least one-sixth can be readily cultivated, while the residue is adapted to grazing. The climate resembles that of the Eastern States on the same parallels of latitude, except that the air is much drier and more rarefied and the atmospheric changes are more moderate and gradual. The average yearly precipitation of water is found to be thirty inches, but it falls principally in the rainy season of May, June, and July, and in the snows of winter, rendering irrigation generally necessary during the latter part of the summer in order to secure the best crops, especially in sections of the plains removed from the mountains and forests; approaching these the fall of rain is greater and more equally distributed throughout the year. The facilities for irrigating these lands are excellent, acequias being in most instances readily constructed with the plow and scraper, and with inconsiderable expense. Acequias thirty miles long, with a fall of four feet per mile, watering 20,000 acres, have been constructed; each adjoining proprietor contributing toward their construction and repair, the expense to each being a mere trifle compared with the benefits derived. Many of these acequias are the property of single individuals or companies, who rent water privileges to neighboring settlers, reaping therefrom handsome profits above the expense of construction and repair.

The soil of the plains rests upon calcareous rock and is principally of alluvial formation, having been washed from the vast granite mountains rising above their western limits, and contains elements of great fertility. Near the streams a large proportion of decomposed vegetable matter enters into its composition, united with ashes and sand; on the plateaus there is less vegetable deposit, the soil being principally composed of sandy loam and friable clay.

This section of country is exceedingly well adapted to agriculture; cereals, vegetables, and fruits being cultivated with a success that is astonishing in view of the altitude of the surface of the earth and the scarcity of rain at certain seasons of the year. The average yield of wheat per acre for last season was estimated at thirty bushels, but as many as eighty bushels per acre were taken from fields in favored locations. The quality of the wheat grown in Colorado is excellent, and more like that of the Pacific than the Atlantic slope. The average yield of oats was fifty bushels, and of barley forty bushels, to the acre; the yield of each of these cereals being sometimes as high as one hundred

bushels to the acre. Over three hundred and sixteen bushels of corn were gathered last season from an acre in the vicinity of Denver, and nearly as many in several localities in the more southern portion of the Territory, which section is exceedingly well adapted to the culture of this staple; the annual crop, it is reported, already amounts to nearly one million bushels. The yield of wheat in Colorado exceeds one million bushels, and that of oats and barley is stated to be more than half a million bushels each.

The vegetables of Colorado are superior, and, under the influence of careful irrigation, attain a size and possess a delicacy peculiarly their own. In the agricultural fairs of last season cabbages were exhibited weighing sixty pounds each, and so large that the head, denuded of extraneous leaves, could not be placed in a flour barrel; potatoes weighing from five to six pounds each, and a bushel of them containing but fifty potatoes; beets two feet long, weighing fifteen pounds each; water-melons weighing nearly fifty pounds each; parsnips weighing thirty-one pounds; sweet potatoes weighing fourteen pounds; squashes with a circumference of sixty-six inches twenty-eight inches in length; and turnips thirty-two inches in circumference, ten inches long, six of them making a bushel, the average weight of each being over nine pounds. The average yield of potatoes and vegetables is one hundred bushels per acre.

The present most important resource of the plains of Colorado is stock-raising, and indeed so successful is this industry that the conclusion has been reached that, notwithstanding the wealth in mines and the rich returns of agriculture, the pastures of the Territory possess the greater source of wealth; this conviction being founded upon actual results already obtained, springing from the healthfulness of the climate, the dryness and purity of the atmosphere, and the rich nutritious grasses upon which the cattle will subsist in excellent condition during the entire year, as the grass, when ripe, dries upon the stalk, forming hay superior to that prepared by the most careful curing in the Eastern States. It is said that there is no weather of sufficient severity to render shelter necessary for the protection of cattle on the Colorado Plains. These pastures are now estimated to support one million head of cattle and two million sheep.

In the southern part of the Territory, along the valleys of the Rio Grande and Arkansas, both agriculture and herding have been carried on with success by settlers of Mexican descent for a great number of years, although far removed from facilities for transportation, possessing the rudest implements and no knowledge of the improvements instituted by the hand of science. The agriculture and stock-raising of the northern portion of the plains, extending from Denver to the Wyoming boundary, has grown to be more than half that of the entire Territory, although having received its inception but three years since; the proximity of the Pacific railroad affords ready transportation to excellent markets for the products of this region.

The parks of Colorado are a distinctive and remarkable feature of the mountain country, being apparently the basins of former lakes upheaved and deprived of their waters by volcanic agency, with their original shape and situation at the foot of high mountains undisturbed, while their lowest depths are from six to nine thousand feet above the level of the sea. Many of these parks are small in size, being little valleys at the sources of single streams, or the beds of small lakes into which several streams from the surrounding mountains are emptied; yet there are four of these elevated valleys, the smallest of which extends

twenty by fifty miles, and the largest one hundred by two hundred miles, equal to the size of some of the most important of the New England States. These are called the North Park, Middle Park, South Park, and San Luis Park.

The North Park reaches to the northern boundary of the Territory, and within forty miles of the Pacific railroad, it being the basin in which converge the small streams forming the head-waters of the North Platte River. Its surface is alternately meadow and forest, supporting an abundance of game, such as deer, antelopes, and bears; its streams are well supplied with dainty fish; but, on account of its great elevation, added to its northern latitude, it has not the same advantages for agriculture possessed by the other large parks, which have less altitude besides a more southerly location.

Middle Park lies next below North Park, being separated therefrom by a range of mountains extending from southeast to northwest, which constitutes a section of the dividing ridge of the continent separating the rivers of the Atlantic from those of the Pacific slope. The waters of this park flow into the Colorado of the West, emptying into the Gulf of California. Middle Park is fifty miles wide by seventy long, and embraces within its basin several ranges of hills, besides two or three distinct and extensive valleys; it is surrounded by the great mountain peaks of the Territory, including Pike's Peak, Gray's Peak, Long's Peak, and Mount Lincoln, rising to an elevation of from thirteen thousand to fourteen thousand five hundred feet, snow-capped mountains circling its whole area. It is milder in climate and possesses a vegetation superior to that of the North Park, but inferior to that of the South Park.

South Park is thirty miles wide and sixty long, lying on the eastern side of the divide, and furnishing the head-waters of the Arkansas and South Platte Rivers. This is the most beautiful and the best known of all the parks, discoveries of rich mines having opened roads and scattered settlements throughout its limits. The soil is fertile and the scenery magnificent, offering, aside from the rich deposits of precious ores, inducements to settlers unsurpassed upon the continent. Water and forests are both plentiful, and the climate is delightful.

The San Luis Park is in the southern portion of the Territory, between the Rio Grande del Norte and the head-waters of the Arkansas River, surrounding a beautiful lake of the same name, which is sixty miles in length, receiving the waters of nineteen streams, with no apparent outlet. This is the largest of the parks, having an area of 18,000 square miles, and containing, besides those streams emptying into the San Luis Lake, sixteen others which empty into the Rio Grande del Norte. This park is remarkable for its natural scenery, the grandeur of its forests, the fertility of the soil, the purity of its waters, and the vast deposits of peat in the vicinity of San Luis Lake. It contains a population of 25,000, principally of Mexican descent, who are chiefly occupied in herding and agriculture. Cattle subsist the year round upon the indigenous grasses of these elevated pastures, without other food, and with no shelter except that afforded by the forests and undergrowth. The grass, whether green or cured into hay upon the stalk by the dry winds of the later summer months, appears to possess qualities similar to that of the plains, although growing at a much greater altitude. In fact, it is surprising how little the vegetation seems to be affected in this region by elevation above the sea level, the luxuriant pastures and majestic forests of South and Middle Parks being from seven to ten thousand feet above the sea. Cereals and tender vegetables thrive abundantly at seven thousand feet, while potatoes, cabbages, and turnips, are cultivated at an elevation of



eight thousand. Beautiful flowers and nutritious grasses grow at eleven thousand feet, and evergreen trees attain considerable size at eleven thousand five hundred feet, above sea level.

The gold and silver mines of Colorado, so far as developments have reached, are located principally in the park and mountain country, commencing in Summit and Boulder Counties, between the one hundred and fifth and one hundred and sixth meridians, near the fortieth parallel, extending thence in a southwesterly direction through the Territory. The region embracing the mines possesses a width of from thirty to sixty miles. These mines are of gold, silver, and copper, the gold ore rarely being without an intermixture of more or less silver, or the silver ore without tracings of gold, and frequently all three metals are combined in the same ore, this being the case in several of the most profitable mines in the Territory.

The mining interests, having become settled upon a permanent and substantial basis, are constantly advancing in importance and extent, the annual product of gold and silver being now nearly equal to that produced in the midst of the wildest excitement concerning the gold region of Pike's Peak, when the Territory was literally overrun with eager seekers after immediate wealth. During the most prolific period of the mines of Colorado *gulch mining* was followed almost exclusively; and it was the supposed exhaustion of the placer detritus of deposits of gold in paying quantities which caused the abandonment of the mining industry to such an extent as to reduce the annual product of gold and silver in the Territory from seven to eight millions of dollars in 1863 to one million in 1866. Succeeding the era of wild excitement in the history of these mines was a period of depression, when more careful methods of collecting the precious metals were necessarily instituted in order to furnish a livelihood to the mining population gathered within the Territory without means of returning whence they came, and machinery for quartz mining was inaugurated. Since such establishment of this industry upon a firm basis, each year nearly doubles the product of the one preceding, this being quite as true of the gulch mines, which were supposed to have been exhausted, as of the quartz mines, into which improved machinery and processes are being continually introduced. In view of these facts and the investigations of geologists, it is evident that the mines of Colorado are as yet in the merest inceptive condition of development.

The richest gold mines yet discovered in Colorado are in the several vicinities of Gold Hill, Nevada, Central, and Black Hawk. The richest silver mines are at Georgetown. Under improved methods of treating, gold quartz from \$4,000 to \$5,000 per ton is often obtained from the selected ore of some of the mines, and the price of \$1,000 per ton is frequently paid by the owners of mills and furnaces for the crude ore. The proprietors of the reduction works at Swansea, in Wales, purchase of the smelting works near the mines the fused *mat*, containing gold, silver, and copper, paying for the same the entire value of the gold and silver, retaining the value of the copper for their share of the result. It is contemplated, however, to introduce the entire Swansea smelting and segregation process into the mills of the Territory at a very early day, and from the date of such introduction it is probable that a new and truly golden era will commence in the development of the mining interests. The result of the adoption of this process can be predetermined by the fact that under its operation \$200 to \$300 per ton of gold is collected from ore that, with the stamping mill, would yielded but \$40 per ton. The average wealth of the silver ore is \$150 per ton, and that

of the copper ores from thirty to sixty per cent. pure metal. Information has been received of the recent discovery of very rich deposits of gold and silver in the southern portion of the Territory, on the Rio de la Plata, about fifty miles from the San Juan River, and much excitement has been created thereby among adventurous miners.

The section of Colorado known as "The Mountains," being that vast extent of elevated country west of the foot-hills of the Sierra Madre and the great parks, is only regarded by the world of civilization as a country containing large quantities of excellent timber, certain indications of gold, silver, copper, iron, and coal deposits, a mine of tin, and an abundance of game; years will doubtless elapse before any sure knowledge of the resources of this section will be obtained.

The manufactures of Colorado are still in their earliest infancy; but the start has been made, and more capital alone is wanted for their rapid development, as the streams afford excellent water-power, fuel will soon be cheap and plentiful, and supplies of the raw material for wool manufactures, flouring, and manufactures of soda, salt, leather, paper, pottery-ware, fire-brick, and iron-ware are abundant and easily attainable, as attested by the successful institution of all these several branches of industry.

The branch of the Union Pacific railroad from Cheyenne to Denver is being rapidly pushed toward completion; also the Kansas Pacific railroad from the Kansas boundary to Denver; and it is reasonable to conjecture that these avenues of commerce will afford no inconsiderable impetus to the development of the riches of Colorado and the settlement of her mineral and agricultural lands. The route of a Southern Pacific railroad is also proposed, which extends diagonally from northeast to southwest across the southern portion of the Territory, in the vicinity of some of its most promising agricultural lands and richest pastures, which are now nearly destitute of means of communication with the world of commerce, except in regard to cattle, which are driven in herds across the plains for hundreds of miles to find transportation by rail or steamer.

The number of acres which have been surveyed in Colorado is 4,356,831, and there are yet unsurveyed 62,523,169. The number of acres disposed of to settlers is 4,091,346, leaving yet to be disposed of under the United States land system 62,788,654 acres. The district land offices in Colorado for the disposal of the public domain are located at Denver City, Fair Play, and Central City.

WYOMING TERRITORY, organized by an act of July 25, 1868, lies between the twenty-seventh and thirty-fourth meridians of longitude west from Washington, and the forty-first and forty-fifth degrees of north latitude, with an average length of three hundred and fifty-five miles and width two hundred and seventy-six miles. It has Dakota and Nebraska on the east, Colorado and Utah on the south, Montana on the north, and Utah and Idaho on the west, and embraces an area of 97,883 square miles, or 62,645,120 acres—larger than the State of Oregon, and equal to that of Alabama and Mississippi, or Georgia and New York. This newly erected political division, lying along the line of one of the most important of our great national highways, is brought into close relations with the adjacent States and Territories, and is destined to exert a most powerful influence in developing the immense resources of the West.

The southeastern part of Wyoming is watered by the North Fork of the Platte and its affluents, among which are Laramie and Sweetwater Rivers, Lodge Pole, Rock, Poison Spring, Medicine Bow, Horse, and Rawhide

Creeks. The northeastern section is drained by the North and South Forks of the Big Cheyenne River, flowing eastward and discharging its waters into the Missouri near Fort Sully, in Dakota. The streams draining the southwest are Green River and its numerous affluents, whose waters ultimately find their way into the Pacific Ocean through the Colorado of the West and the Gulf of California. The northwest, to the extent of one-fourth the whole area of the Territory, is watered by the Big Horn and Yellowstone rivers—affluents of the Missouri—flowing north through southeastern Montana. All the small streams west of the Wind River Mountains, in the northwestern part of the Territory, flow westward, constituting part of the head-waters of Snake River, which flows westward through Southern Idaho, and thence north, forming part of the west boundary of the latter Territory, thence turning again to the west into Washington Territory, where it unites with the Columbia in its westward course to the Pacific.

The main range of the Rocky Mountains, which to the north constitutes the eastern boundary of the Territory of Idaho, enters Wyoming at the northwest, extending in a southeasterly direction through the Territory into Colorado. The Wind River Mountains constitute the culminating crests of the main range of the Rocky Mountains in the northwestern part of Wyoming, like the Bitter Root Mountains between Idaho and Montana, and the Sierra Madre in Colorado, which constitute the main continental divides. The Snow Mountains lie east of the Wind River Range, being a prolongation south from Montana. This range has the valley of the Yellowstone on the west and that of the Big Horn on the east. The Big Horn Mountains lie still further east, also in the northern part of the Territory, between the valley of the Big Horn and Powder Rivers. The Rattlesnake Mountains are south of the Big Horn Mountains, near the geographical center of the Territory. The Black Hills, which constitute the eastern foot-hills of the Rocky Mountains, occupy part of the eastern section of the Territory, extending from Dakota in a southwesterly direction. Medicine Bow Mountains are in the southern part of Wyoming, between the Laramie River and the North Fork of Platte. The Red Buttes are north of Medicine Bow Mountains and the Laramie Plains. Independence Rock, near the eastern terminus of the Granite Ridge, is situated between the Rattlesnake and Medicine Bow Mountains, at the confluence of the Sweetwater River with the North Fork of the Platte. The Sweetwater Range lies west of Independence Rock, on the south side of Sweetwater River; Bishop and Quien Horned Mountains, east of Green River, near the southern boundary of the Territory, being spurs of the Sierra Escalante, in Colorado.

The greatest altitude of the Wind River Range is Frémont's Peak, near longitude  $110^{\circ}$  west from Greenwich, and latitude  $43^{\circ} 30'$  north. It rises thirteen thousand seven hundred and fifty feet above the level of the sea, and is one of the highest culminating crests of the great Rocky Mountain system. It is the initial point of three water-sheds—the Columbia, flowing into the Pacific; the Colorado of the West, discharging its waters into the Gulf of California; and the Missouri, whose waters find their way ultimately into the Gulf of Mexico. The Laramie Plains are an extensive high plateau, or table-land, in the southern part of the Territory, west of the Black Hills, extending westward to the Wasatch Mountains. These vast plains embrace an area of thirty thousand square miles, underlaid with lignite or brown coal of the tertiary age. These vast deposits average from a few inches to fifteen feet in thickness. The most eastern limit of this coal basin west



of the Laramie Range is ten miles west of Rock Creek, a branch of Medicine Bow River, and outcroppings occur as far west as Salt Lake, showing a connected series of deposits to cover the whole area.

This coal, taken from outcroppings, is found to burn with a bright-red flame, emitting a good degree of heat, leaving scarcely any ash, and is quite as desirable for all domestic purposes as most of the bituminous coals of the Eastern States. This coal is non-bituminous. It exhibits a slight trace of sulphuret of iron, which, by decomposition, gives a *rusty red* appearance to outcrops. Seams of jet from an inch to one foot in thickness occur occasionally in these coal beds, which have the appearance of cannel coal. We have no information as to whether any experiments have been made to test the usefulness of these lignites for the generation of steam and for smelting purposes, but there appears to be little doubt that with the aid of science all these vast deposits of mineral fuel will be turned to great economical value. The value of such vast deposits of fuel here can hardly be overestimated when it is considered that the greater part of the adjacent States and Territories is remarkably deficient in fuel either above or beneath the surface.

Again, in juxtaposition with these vast coal beds are extensive deposits of nodular iron ore, while in the mountains surrounding the Laramie Plains deposits of iron ore of great thickness occur. The Union Pacific railroad, which has been completed since the date of last report, passes directly through these vast coal fields, and will afford a ready means of transportation for the products of these mines either east or west. The existence of these large deposits of mineral fuel, in connection with vast quantities of iron ore, all in accessible proximity to this great national thoroughfare, are circumstances calculated to exert a most powerful influence in the development of the resources of this region and of the great West. These vast coal fields and deposits of iron ore will prove of inestimable value, and exercise the same influence upon its development that the great coal fields and iron mines of Pennsylvania have exercised in the East. Valuable mines of copper, lead, and gypsum are known to exist in the Territory. The mountainous portions of Wyoming have been but imperfectly examined as yet. There is little question but that many sections will prove to yield rich deposits of gold and silver. Gulch mining is carried on in a great many places with gratifying results, but gulch diggings are soon exhausted, and for more lasting results attention must be directed to quartz mining. These deposits are by far the most numerous and valuable. We have no reliable data as to the exact extent and value of the mines in Wyoming, and but a very imperfect report as to their yield. The principal mines in the Territory bearing gold and silver are in the northeastern part of the Territory, in the vicinity of the Black Hills, in the southeast on the Big Laramie River, on Powder, Big Horn, and Sweetwater Rivers, and in the vicinity of South Pass. Prior to the completion of the Union Pacific railroad the lack of facilities for transportation and the want of proper mining machinery were circumstances which tended to retard the development of the mineral resources of the Territory. And the same causes which have operated against the development of the rich mineral districts in other localities, and especially those from old and permanently settled communities, have also been felt in Wyoming. Happily, many of these difficulties are now being rapidly removed or overcome, and the mining interest of Wyoming, which is now for the most part guided and conducted with science, skill, and capital, promises not only to prove extensive but to yield an abundant reward. Building material of an excellent quality exists in abundance in almost every part of the Territory.

Everywhere throughout the mountain regions superior marbles, granites, limestones, and syenites exist in immense quantities.

Timber, consisting chiefly of pine, spruce, and hemlock, exists in abundance in almost every section of Wyoming. The immense forests on the Black Hills in the east, on the Medicine Bow, Elk, and other mountains east of the main divide, as well as those west, on the headwaters of Green River, are hundreds of square miles in extent, and afford some of the finest timber in the country. These regions are watered by the great streams—the Laramies, Medicine Bow, North Platte, Sweetwater, and Green River—and during the high stages of water lumber may be rafted down to the Union Pacific railroad and placed within the reach of ready markets, thus proving a source of immense revenue and of the highest possible advantage to that portion of the great West deficient in building material.

Wyoming is strictly a mountainous region, its general surface being several thousand feet above the level of the sea. The exploration of the country has demonstrated that, with the aid of irrigation, there is a very considerable area which may be made available for the production of cereals and vegetables. The lands in the valleys and along the bases of the mountains in many places are very productive, and by irrigation are susceptible of high cultivation. The region of the Laramie Plains is high, but mostly well watered, and capable of raising vegetables and small grains in abundance. A large portion of Wyoming produces a luxuriant growth of short nutritious grass, upon which cattle will feed and fatten during the summer and winter without other provender. These lands, even in their present condition, are superior for grazing.

The climate is mild and healthy, the air and water pure, and springs abundant. The temperature generally, for the greater portion of the year, is mild, yet subject to extreme cold in midwinter.

The whole Territory abounds in mineral springs—saline, chalybeate, sulphurous, and alkaline being the most common. Many of these springs are highly charged with medicinal properties, and some are already noted for their curative qualities.

Cheyenne, the political capital of Wyoming, is situated on Cow Creek, a branch of Lodge Pole Creek, 516 miles west of Omaha, on the Union Pacific railroad, at an altitude of six thousand feet above the level of the sea. It is 102 miles north of Denver, Colorado, and the Denver Pacific railroad, designed to connect these two places, is now rapidly approaching completion. Cheyenne contains about two thousand inhabitants. There are other towns in the Territory fast growing in importance, and among these are Laramie, Wyoming, Benton, Rawling Springs, Green River City, Bryan, Granger, and Piedmont on the Union Pacific railroad.

Settlements are being rapidly established in the vicinity of the Union Pacific railroad, and valuable and permanent improvements are being made, while the mines of coal, gold, silver, and iron are in process of development. Attention is invited to the necessity of making provision for the appointment of a surveyor general and district land officers in the Territory, the \$20,000 appropriated by act of July 2, 1868, for surveys in the Territory, not being available, inasmuch as no authority of law has yet been conferred for the appointment of a surveyor general.

MONTANA TERRITORY.—The name Montana is of Spanish origin, meaning mountainous, an appellation particularly applicable to this Territory. The Indians gave it the name of “Tayabe-shockup,” or “the country of the mountains;” it having been their home anterior to the discovery of America. It consists of a series of basins, five in num-

ber; four of them lie on the east side of the Rocky Mountains, and one on the west. These basins are generally subdivided into a number of valleys by spurs jutting down from the main chain of the Rocky Mountains. These spurs are often of great elevation, frequently exceeding that of the main chain; but there are numerous passes between them, connecting the valleys with each other by low gaps which may be traveled at all seasons of the year.

The basin west of the Rocky Mountains, in the northwestern corner of the Territory, is drained by the Missoula and Flat Head Rivers and their branches, the last-mentioned being the outlet of the lake of that name, a fine sheet of water forty miles long by twenty wide, lying at the foot of the Rocky Mountains near the northern end of the basin, and not far from the line of British Columbia. This lake is surrounded by a beautiful country, a portion of which is valuable for agricultural purposes. From the lake there extends southward along the foot of the mountains to Pend d'Oreilles Mission, a distance of over fifty miles, a well-wooded, gently rolling country, clothed with fine growth of grass, a large proportion being excellent farming land; then crossing a range of hills to the south, we enter the valley of the Jocko, which is small, but in beauty and fertility is unsurpassed. Here is located the reserve of the Pend d'Oreilles Indians. Then crossing by an easy pass the lofty spur of mountains running down from the main chain between the Jocko and Hellgate Rivers, the valley of the Hellgate is entered, which is twenty-five miles long with an average breadth of six miles. It is nearly all excellent farming land, with good growth of bunch grass, a large proportion of it containing valuable pine timber.

The valley of the Bitter Root is fertile, extending south sixty miles, with an average breadth of seven or eight miles. This valley and the Hellgate contain many settlers, whose number is rapidly increasing. The Missoula is formed by the junction of the Hellgate and Bitter Root Rivers. These valleys are bounded on the west by the Bitter Root Mountains, covering an extent of country seventy-five miles wide, reaching to the valley of Snake River in Idaho, and two hundred miles in length. This range is very lofty, snow lying on many of the peaks the entire year. The mineral wealth is supposed to be very great in this region. Big Blackfoot River runs through a cañon for fifteen miles above its mouth, where it opens into a large and beautiful valley, well timbered and watered, forming a good grazing region. Ascending Hellgate Cañon forty miles, we emerge into the rolling grassy hills, which reach twelve miles to the valley of Flint Creek, a region well adapted to grazing and farming. The valley of the Deer Lodge is available for agricultural purposes. There is very little wood, but the mountains surrounding it are well timbered. Its natural advantages for grazing and stock-raising are unsurpassed. This valley is thirty-five miles long, averaging ten miles in width, and is drained by the Deer Lodge River and its branches; but at the lower end it changes its name to Hellgate River, its course being from north to northwest.

The northwestern basin contains eight principal valleys, viz. the valley of the Flat Head Lake, of the Mission, of the Jocko, of Hellgate, of the Bitter Root, of Big Blackfoot, of Flint Creek, and of Deer Lodge, besides many other smaller ones of great beauty and fertility. This basin drains toward the northwest, and is two hundred and fifty miles long by an average width of seventy-five miles. It is the best-timbered part of the Territory, owing, doubtless, to the moist warm winds of the Pacific Ocean, which cause a luxuriant vegetation.



The northeast basin extends from the Rocky Mountains to the eastern border of the Territory, along its north end, a distance of nearly six hundred miles by one hundred and fifty. The eastern portion of this vast basin is composed of clay table lands, or "mauvaises terres," but there is a large area of good land along the streams. There are several spurs here, and occasional mountains, among which are the Bear's Paw, Little Rocky Mountains, and Three Buttes. The basin is drained to the east by the Missouri, Milk, Marias, Teton, Sun, and Dearborn Rivers, the first three emptying into the Missouri below Fort Benton, and the last two a short distance above the Great Falls. The western portion of this basin is but little broken by mountains. The greater part of these lands may be made productive by well-directed systems of irrigation, which the abundance of water renders comparatively easy. The want of timber may be supplied to a great extent by coal, of which there are large deposits.

The western central basin is drained to the east by the Jefferson Fork of the Missouri and its tributaries, of which the principal are the Big Hole and Beaverhead Rivers. Rattlesnake Creek flows from the northwest, and a few miles further west Williams's Creek takes a like direction. Horse Prairie Creek, (which is the head-waters of the Beaverhead,) Red Rock Creek, Black-tailed Creek, and Stray Water River, also drain this basin, which lies in the shape of a spread fan, being a hundred and fifty miles wide by a hundred long.

Rattlesnake Creek is crossed in the cañon above its valley by numerous ledges of the richest silver quartz yet discovered in Montana, some of them assaying as high as five thousand dollars to the ton. These ledges are generally composed of argentiferous galena, a lead ore containing large quantities of silver. Traces of glaciers are still plainly visible throughout the Rocky Mountains of such depth that only the loftiest mountain tops once rose above this sea of ice. The round smooth boulders and gravel, commonly known as the "wash," that are found in the placer diggings, have evidently been caused by the grinding, pulverizing action of these glaciers. The country having undergone great changes by upheaval and depression since that time, and in gold-bearing localities, the action of the elements during countless ages has collected the gold that was ground out of the ledges and rocks by the action of glaciers, into the ravines, creeks, and rivers of the vicinity.

Sixteen miles west of the Rattlesnake is Willard's Creek; both of these streams head in Bald Mountain, fifteen miles north of Bannock City. This large mountain is seamed with ledges of very rich gold and silver bearing quartz. Bannock City stands at the upper end of the cañon, on Willard's Creek, where it opens out into a small valley; the mines extend down the creek seven or eight miles, are deemed valuable, and have heretofore yielded in paying quantities. In this cañon are situated many leads of gold-bearing quartz exceedingly rich. In fact, few places in the world possess greater mineral wealth than the vicinity of Bannock City.

The first stream that flows from the mountains in this region is Wisconsin Gulch. This gulch has been only partially prospected, it being deep to the bed-rock; yet there has been found a considerable extent of placer diggings in and adjacent thereto. A few miles further up the valley is Mile Creek. Along the base of the mountains in its vicinity are a large number of rich gold and silver bearing quartz leads, this being the only place in the range where silver leads are found. Some of them assay from one to two thousand dollars to the ton, and are easy of access. Here is also the thriving village of Brandon. Ram's Horn Gulch has

many rich leads of gold-bearing quartz. A little further up the valley is Rivers's Gulch. Specimens have been taken from this gulch worth three hundred and twenty dollars. Alder Creek is amazingly rich from the source down to its entrance into the river, a distance of about eighteen miles; near its head pieces of ore have been found worth as high as seven hundred and twenty dollars, the gold becoming coarser as the head of the stream is approached. In the hills bordering the stream a large number of gold-bearing quartz leads have been discovered, those extending into Summit district being of almost unexampled richness, while in the mountains at the head of the creek is a coal field of unknown extent, which is now being developed. This is the second place in this basin where coal has been discovered, and in a country so sparsely timbered coal fields are of incalculable value. In fact, nature has placed in Montana all the requisites to enable that country to become one of the wealthiest sections of the United States.

The eastern central basin is drained by the Missouri River below the Three Forks and above them by the Jefferson Fork, into which empty the North Boulder Creek, South Boulder Creek, and Williams's Creek, on the first and last of which are some placer diggings of limited extent and richness; yet there are many rich quartz leads. This basin contains a large area of arable land, with a climate fully equal to that of Utah. It is one hundred and fifty miles long from north to south, by eighty miles east and west, and contains five principal valleys, viz, the valley of the Three Forks, of North Boulder, of the lower part of the Jefferson, of the Madison, and of the Gallatin. It contains a greater extent of farming lands than the basin of the Beaverhead and tributaries. Next and last is the basin of the Yellowstone and its branches. It drains toward the east, and is four hundred miles long by one hundred and fifty wide. But little is known of the mineral resources of this great valley, the hostility of the Crow Indians rendering it very perilous at this time to prospect within its limits. There is every reason to believe, however, that the basin of the Yellowstone will prove rich in precious metals, and it is also known to contain large fields of coal, which are easy of access, among which are a number of petroleum or oil springs.

In climate and fertility this valley is a medium between the valleys of the mountains and prairies of the Western States. Corn, beans, and pumpkins thrive here, and attain considerable size. This basin contains several principal valleys, namely, the main valley of the Yellowstone, of Shields's River, of the Rosebud, of Clark's Fork, of Pryor's Fork, of the Bighorn River, besides many smaller ones. The Yellowstone River is navigable for steamers of light draught nearly to the western edge of the basin, or almost to the center of the Territory.

By reports received at this office to June 30, 1869, it is shown that since the inception of surveys there have been surveyed 22,958.19 acres. The number of acres of mineral land in Montana is estimated 9,200,000; of agricultural land, 23,000,000; of grazing land, 69,000,000; of sterile land, which may be reclaimed by irrigation, 23,000,000; broken by mountain ranges, 46,008,320; of timber, 11,502,320. There are sixty-three cities and towns, the largest of which is Helena, with a reported population of 8,000. The length of the proposed Northern Pacific railroad running through the Territory will be seven hundred and forty miles.

The annual aggregate values of agriculture and mining are: of wheat, \$900,000; barley and oats, \$500,000; potatoes, \$1,000,000; hay, \$200,000; vegetables, \$75,000; cattle, \$450,000; poultry and eggs, \$100,000; butter, cheese, and milk, \$400,000; lumber, \$300,000; total, \$3,925,000; of



gold, \$10,000,000—making a grand total of \$13,925,000. The annual aggregate profit on capital invested in merchandising is \$2,500,000; on capital invested in banking, brokerage, &c., \$200,000; on capital loaned to the government, \$200,000; on capital invested in public transportation by land, lake, sea, or river, \$400,000. The aggregate annual income here of lawyers, physicians, and clergymen is \$180,000; annual compensation of clerks and messengers, \$1,064,000; the yearly amount of wages paid domestic servants of all kinds is \$50,000.

There are 86,887,316.76 acres of public land in the Territory yet to be disposed of. The United States land office is located at Helena, where local officers are ready to receive applications for title to the public land under existing laws.

**IDAHO.**—East of Oregon and Washington Territory is the Territory of Idaho, extending from the international boundary between the United States and British America southward through seven degrees of latitude, or four hundred and ten miles, to Nevada and Utah, with a width of one degree of longitude, or forty miles, on its northern boundary, gradually expanding in the southern extension of the Territory to seven degrees, or two hundred and fifty-seven miles; its eastern boundary being the diagonal range of the Bitter Root and Rocky Mountains, extending from northeast to southwest, separating it from Montana and Wyoming.

The surface of this Territory contains an area of 86,294 square miles, or 55,228,160 acres, and was originally included in the Territory of Oregon as organized by act of August 14, 1848. The section lying north of the forty-sixth parallel was afterward made part of Washington Territory as organized by act of March 2, 1853, and subsequently the portion south of that parallel was added to the latter Territory by act of February 14, 1859, admitting Oregon into the American Union. The Territory of Idaho as originally organized under the act of March 3, 1863, included, besides its present area, the region of country now constituting the Territories of Montana and Wyoming; it having been reduced by act of May 26, 1864, organizing Montana, and attaching the remainder of the country east of the Rocky Mountains and of the thirty-third degree of longitude to Dakota, and still further by act of July 28, 1868, organizing Wyoming.

Idaho lies within the basin of the Columbia River, being principally drained by the Lewis Fork (otherwise known as the Snake or Shoshone River) and its various tributaries, called Clearwater, Boise, Salmon, Fayette, Malade, Blackfoot, Bear, Bruneau, and Owyhee Rivers; the northern extension of the Territory, embracing the basins of Lakes Rootham, Pend d'Oreilles, and Cœur d'Alène, is drained by Clark's Fork of the Columbia and its tributaries, the Kootenah, Cœur d'Alène, and St. Joseph Rivers.

Snake River, or Lewis's Fork of the Columbia, the principal affluent of the latter river from the south, rises in the Wind River section of the Rocky Mountains, in Western Wyoming, near Mount Lincoln, and after receiving the waters of numerous small streams draining the western slope of the range constituting the eastern boundary of Idaho, traverses the southern portion of the Territory a distance of four hundred and fifty miles, pursuing alternately a southwesterly and northwesterly serpentine course to the western boundary, which it forms for a distance of two hundred and fifty miles, flowing in a northerly direction to the junction with Clearwater River near Lewiston, when it turns westward into Washington Territory. Its affluents are the Boise, Salmon, Clearwater, Nevada, McArthur's, and numerous minor streams in Idaho, the Owyhee, Malheur, Burnt, Grand Ronde, and Powder Riv-



ers in Oregon, the Palouse River in Washington Territory, and it is navigable as far as Lewiston; above this point, for more than a hundred miles, being so shallow and rapid that navigation is impracticable for other than very light-draught steamers, and even then is frequently attended with difficulty and danger; but the excellent facilities afforded for the establishment of mills and manufactories, by the rapidity of the current, compensate in a great measure for the want of navigability. Above the mouth of Powder River, however, it is navigable for steamboats, through the heart of Idaho, for one hundred and fifty or two hundred miles, on the direct route to Salt Lake City, and to within one hundred and fifty miles of the Pacific railroad. There are several precipitous falls in the course of Snake River through this Territory—one of them, called Shoshone Falls, situated near 115° west longitude, being two hundred yards wide, and rivaling the Falls of Niagara in volume and height of descent, while far surpassing the latter in magnificent picturesqueness of surrounding scenery.

The upper or Clark's Fork of the Columbia is navigable in its entire course through the northern part of the Territory, including that section where it expands into the beautiful Lake Pend d'Oreilles, and is already extensively used for the conveyance of freight to and from the upper parts of Idaho and Montana. Its certain future improvement and development into a great artery of inland water communication, with the aid of railroad or canal portages past rapid sections of its own course and those of the Lower Columbia, will materially assist in rendering available the resources of the inviting country through which it flows.

The surface of Idaho possesses characteristics similar to those of the great inland basin lying further south, being elevated, within the Sierra Nevada and Cascade Mountains on the west, and the Bitter Root and Rocky Mountains on the east, to an altitude of from two thousand to five thousand feet above the level of the sea, and having insufficient rain-fall for the highest development of vegetation during the summer months without the aid of irrigation, although excellent crops of grain and vegetables have been grown in several of the valleys without other than the natural watering. The tendency to aridity is considerably less than in Utah and Nevada, the average range of summer heat in this northern latitude not being so exhaustive of the surface moisture. The many streams intersecting the valleys, having their sources in mountain heights covered with snow during the greater part of the year, also offer unsurpassed advantages for irrigation, and render this one of the most copiously watered of our inland Territories. In some sections, as in the regions of country around the sources of the Clearwater, Salmon, Boise, and Snake Rivers, in the Bitter Root and Rocky Mountains, the average yearly fall of rain and snow is very large, rain-storms occurring during the driest months of the summer sufficient to maintain the volume of these streams at nearly the same average in all seasons of the year, excepting the short rainy seasons of the spring and autumn. The necessity of irrigation is much less apparent in the northern portion of the Territory than further south; but the extreme cold which often attends the winters of the latitudes approaching the British boundary repels the immigrant agriculturist, and this region consequently contains fewer settlements than the central and southern parts.

The mountains of Idaho often attain great altitude, having peaks rising above the line of perpetual snow, their lower slopes being furrowed with numerous streams and alternately clothed with magnificent forests and rich grasses. The plains are elevated table-lands covered with indigenous grasses, constituting pasturage unsurpassed in any section of our

country. Numerous large flocks of sheep and herds of domestic cattle now range these pastures, requiring but little other sustenance throughout the entire year, and no protection from the weather other than that afforded by the lower valleys or the cañons, in which many of the streams take their way through the upland country. The valleys are beautiful fertile depressions of the surface, protected from the scorching winds of summer and searching blasts of winter, each intersected by some considerable stream, adjoining which, on either bank, and extending to the commencement of the rise of table-land or mountain, are broad stretches of prairies or meadows, producing the richest grasses, and, with the aid of irrigation, crops of grain, fruit, and vegetables superior to those of any of the Eastern States, and rivaling the vegetation of the Mississippi Valley. The pastures of these valleys are generally uncovered with snow in the most severe winters, and afford excellent food for cattle and sheep, the herbage drying upon the stalk during the later summer and autumn months into a superior quality of hay. As no artificial shelter from the weather is here required for sheep or cattle, stock-raising is attended with but little outlay and is very profitable, promising soon to become one of the greatest sources of wealth in this rapidly developing, but still underrated, Territory. It was considered totally valueless, except for mining purposes, and uninviting to the agriculturist, until immigration disclosed its hidden resources.

It is the favorite custom of herdsmen in Idaho to reserve their lower meadows for winter pastures, allowing the stock to range the higher plains during spring, summer, and autumn; the greater extent of the table-lands, and the superior adaptability of the valleys for agriculture, presenting reasons for the adoption of this method as one of economical importance.

Among the largest, best situated, and most attractive of the valleys of Idaho are those of the Clearwater, Salmon, Fayette, Wood, Weiser, St. Joseph, and Cœur d'Alène, these being all profusely watered, and possessing soil of extraordinary fertility, readily yielding, with irrigation, abundant crops of barley, wheat, rye, and oats, as well as all the ordinary vegetables and fruits of the temperate zone; while vast stretches of magnificent forest, presenting abundant supplies of timber and firewood, constitute a conspicuous element of beautiful mountain scenery. Bottom lands of great fertility and considerable extent surround the shores of Lakes Cœur d'Alène and Pend d'Oreilles, in the northern part of the Territory; and there are numerous small but very productive valleys on the streams emptying into those lakes. The preference of agricultural settlers, however, is for the valleys lying within the water system of the more southern branch of the Columbia.

The climate of Idaho varies considerably with the degrees of latitude through which its limits extend, but not so much as would naturally be supposed from its great longitudinal extension. The isothermal lines of the Territory, running from east to west, have a well-defined northward variation, caused by the influence of air currents from the Pacific Ocean. Throughout the spring, summer, and autumn months, in the northern as well as the southern sections, the weather is generally delightful and salubrious; in the winter months the range of the thermometer depends greatly upon the altitude of the surface, the higher mountains being visited by extreme cold and heavy falls of snow; the lower mountain ranges and the plains having winters generally less severe than those of Northern Iowa and Wisconsin or Central Minnesota, while greater dryness of the atmosphere renders a lower fall of the thermometer less perceptible, and the valleys being rarely visited by cold weather,



high winds, or considerable falls of snow. Considered in its yearly average, the climate is exactly adapted to sheep-growing and the production of wool, the herding of cattle, and manufacture of dairy products; the raising of very superior breeds of horses, as well as the culture of all northern varieties of fruits, such as apples, pears, plums, cherries, peaches, grapes, and all of the ordinary cereals and vegetables.

Besides the great wealth in mines of gold and silver which Idaho contains, constituting the principal attraction to emigrants thus far in the history of the Territory, extensive deposits of not less important useful minerals are known to exist in different sections within its limits, although there has yet been no organized geological survey and very little prospecting; such disclosures of minerals, precious or otherwise, as have been made having resulted from accident rather than from careful investigation, inducing the general belief among geologists and mineralogists that but little is really known of the mineral resources of this remote section of the public domain, and that the future of its mining developments will far exceed in importance present general anticipations. Conspicuous among the useful minerals are vast beds of salt, found upon analysis to be almost chemically pure, extensive fields of iron ore, and apparently inexhaustible strata of excellent coal. The coal and salt are already prominent among the mining products; the local demand created by their employment in the process of reducing and refining the ores of gold and silver, as well as by domestic necessity, rendering their production profitable; but increased facilities for transportation to adjacent States and Territories are required to develop these branches of mining industry to a degree commensurate with the great extent and value of the deposits. Up to this time the beds of iron ore have been of but little service to the settlers, but must eventually contribute largely to the future wealth of the Territory.

The first discoveries of gold in Idaho were made in 1852, on the Pend d'Oreilles River, near the lake bearing the same name; the discoverers, however, did not avail themselves of the extraordinary indications of mineral wealth, no mining operations of importance having been prosecuted within the limits of the Territory until 1860, when an extraordinary quantity of valuable placer detritus was ascertained to exist on the South Fork of Clearwater River, attracting, by the richness of the ore and the success attending gulch mining at this point, the attention of miners in all parts of the western country, and inducing the influx of immigrants to engage in this pursuit. Immediately following these discoveries a fever of excitement prevailed relative to the gold mines of Idaho, the consequence being overcrowding, disappointment, and unreasonable neglect. Since the period of reaction, however, the mining industry has steadily advanced in importance and amount of product, experiencing annual variations as richer or more barren sections of lodes or gulches were being worked, the annual yield ranging from six to eight millions of dollars until last year, when the product was found to amount to about ten millions. As new and valuable discoveries have been made during the present season, including extremely prolific placer mines, the product of the year will undoubtedly reach an equal amount, and probably exceed it, while the indications of the immediate future of both gold and silver mining in this Territory are brighter than ever before since the first inception of the enterprise; the completion of the Pacific railroad and the establishment of new and improved express routes having greatly lessened the cost of transportation, and the progress of local agriculture, horticulture, and stock-raising having cheapened the price of articles required for the



subsistence of miners. As these latter branches of industry become still further advanced, better facilities for transportation furnished, and more economical methods of reducing ores introduced, the business of mining must greatly increase in profit and importance, until results are attained in advance of the most sanguine present anticipations.

Gold is found on the headwaters of all the rivers, and silver in various sections of the Territory, more particularly in the southern part; but mining is principally confined at present to the Owyhee district, near the Nevada boundary, between the Owyhee and Snake Rivers, the basin of Boise River and its tributaries, the Salmon River and Clearwater Valleys, and the newly discovered placer mines at Oro Grande, on a tributary of Salmon River called Leon Creek. The ores of the Owyhee mines are encased in granite, and are chiefly chloride and sulphuret of silver associated with more or less gold and tracings of copper and antimony, most of the mines being worked for both gold and silver; but a few exclusively for one or the other of these metals. The district surrounds the town of Silver or Ruby City, in the vicinity of which are some of the most productive lodes in the Territory, situated near the summit of a high mountain called War Eagle, which rises abruptly from the outskirts of the town, the average yield of the majority of the principal mines on these lodes being about sixty thousand dollars each per month. The Flint district, in the Owyhee country, surrounding the town of Owyhee, nine miles south of Silver City, contains many valuable veins of gold and silver; two hundred and eighty dollars per ton having been realized from one hundred and sixty tons of selected ore from one of the mines of this district. The mines of the Salmon and Clearwater Valleys are principally located upon the placer detritus in the beds of these streams and their tributaries, the product being sufficient to retain a large number of miners at work; the present favorite gulch mines, however, are those of Oro Grande, situated in a narrow gorge between high mountains, about six hundred yards in width and fifteen miles in length, there being now over seven hundred men at work here, with unoccupied sections of the gulch offering profitable employment for as many more. The annual yield of gold from placer mining in Idaho continues to reach the amount produced in the period of greatest excitement, new discoveries being made every year of deposits equally as prolific and extensive as those which are becoming exhausted. By the time that the gold shall have been gathered from all of the paying detritus in the Territory, quartz mining will doubtless have been developed sufficiently to employ all the mining population, as well as immigrants reaching that section of the country in search of this species of employment. The number of quartz mills now in operation in Idaho is reported to be thirty-five, having a total of about four hundred stamps, which cost in the aggregate over a million of dollars, and have a united capacity equal to five hundred horse-power. The abundance of water, wood, coal, and iron, adjacent to the gold and silver mines of Idaho, is a feature greatly adding to their values, and enhancing a probability of a future increase of their annual product to amounts equal to the yield of any district in our country.

No railroads have yet been constructed in Idaho, but as the line of the Union and Central Pacific roads runs in close proximity to its southern boundary, it receives a generous share of the benefits conferred upon this section of the country by the great national interoceanic highway. The projected route of the Northern Pacific railroad passing through its northern extension, the proposed Oregon branch of the Union Pacific crossing its southern limits connecting with the head of the upper nav-

igable section of Snake River, and great inducements existing for the construction of another branch from Great Salt Lake nearly due north, through its eastern section, into Montana, this Territory will probably soon be in possession of facilities for transportation and commerce fully equally to the development of its many resources. The total area of Idaho is approximately estimated to contain, of agricultural lands, 16,925,000 acres; grazing, 5,000,000; surface of lakes, 575,000; sterile lands, producing no other vegetation than wild sage and occasional tufts of buffalo grass, but principally reclaimable by irrigation into excellent pasture and agricultural land, 14,328,160; mountain lands, 18,400,000—embracing 7,500,000 acres of timber lands and 8,000,000 of mineral lands.

The value of the annual product of agriculture in the Territory is estimated at \$12,000,000; aggregate annual yield of the gold and silver mines, \$10,000,000; annual aggregate of secondary values added to raw material by chemical and mechanical processes, \$170,000, with an average profit of 75 per cent.; aggregate annual profit of capital invested in commerce, \$3,000,000, with an average profit of  $33\frac{1}{3}$  per cent.; aggregate annual profit of capital invested in banking, \$50,000, and in private loans, \$50,000, with an annual profit of  $33\frac{1}{3}$  per cent.; aggregate annual profit of capital invested in public transportation, \$250,000, with a profit of 25 per cent.

The population of Idaho is estimated at from 25,000 to 30,000. Among the principal towns are Boise City, the capital, situated on the Boise River, 50 miles from its mouth and 390 from Salt Lake City, having a population of about 2,000, and Lewiston, a prosperous commercial town, at the head of ordinary navigation on the Snake River, 350 miles east of Portland, Oregon, also containing a population of about 2,000, both of these towns being sites of local land offices; Idaho City, 30 miles north-east of the capital, in the center of a rich mining district, is a thriving, busy town, with a population of about 3,000; Pioneer City has a population of 2,000; and Silver City, 1,600. During the past year surveys were principally confined to standard and township lines, but section lines were run in some of the most thickly populated districts, subdividing into tracts of 160 acres each twenty-two townships, embracing 255,862 acres of agricultural lands. There have now been surveyed in Idaho 510,973 acres, leaving still unsurveyed 54,717,187 acres. The total number of acres disposed of in the Territory under the different laws of Congress governing the extinction of the government title to the public domain is 3,092,331 acres, leaving 52,135,829 acres still to be disposed of according to the provisions of the pre-emption and homestead laws, by purchase at public or private sale, or by location with military bounty warrants, agricultural scrip, or Indian half-breed scrip.

UTAH.—East of Nevada is the Territory of Utah, bounded on the north by Idaho and Wyoming, on the east by Colorado, and on the south by Arizona; embracing an area of 84,476 square miles, or 54,065,075 acres; equal in extent to the whole of New England. It was organized under act of Congress approved September 9, 1850, being part of the territory acquired from Mexico under the treaty of Guadalupe Hidalgo; its limits, as defined in the act of organization, having been since reduced by the act of March 2, 1861, creating the Territory of Nevada, the acts of July 14, 1862, and May 5, 1866, increasing the area of Nevada, and the act of July 25, 1868, organizing the Territory of Wyoming.

Utah is divided by the Wahsatch Range of mountains, extending across its limits from northeast to southwest, into two unequal parts, belonging to different watersheds or systems. The smaller section,



lying west of the mountains, constitutes part of the great elevated inland basin in which Nevada lies; the portion east of the mountains being drained by the Colorado of the West. The altitude of its surface is similar on both sides of the dividing range, the valleys and lakes lying from 4,000 to 6,000 feet above the sea level, and the mountains rising to an elevation of from 6,000 to 13,000 feet, the tops of the highest peaks being above the line of perpetual snow. In common with the water system of Nevada, the section west of the Wahsatch Mountains contains no outlet to the ocean for its numerous streams, or its lakes of salt and fresh water, many of the latter being of great size; the largest, Great Salt Lake, situated in the northwestern part of the Territory, extending 100 miles from northwest to southeast, with a width of 50 miles, its waters constituting the strongest natural solution of mineral substances in the world, containing 25 per cent. of common salt, which forms so dense a brine that no fish can exist therein, while living bodies float upon its surface like corks. Several rivers, rising principally in the Wahsatch Mountains, empty into this lake, among which are the Jordan, the Bear, and Weber Rivers. The first knowledge of Great Salt Lake among European races was obtained in 1689, from the Indians, by whom its dimensions and properties were very much exaggerated. It was first navigated in 1843, and surveyed in 1849, being found to possess a depth in places approaching that of the great lakes of Nevada, while in other places it covers hundreds of acres with a depth of but two or three feet; numerous peninsulas diversify its shores, and extensive islands intersperse its surface.

Second in size among the lakes of the Territory is Lake Utah, lying 45 miles south of Great Salt Lake, and connected with the latter by the Jordan River; it is 30 miles in length by 10 in width, of pure fresh water, abounding in fish of considerable size and excellent flavor. Several large streams empty into this lake, among which are the Timpanagos, Provo, and Spanish Fork. Other extensive lakes of Utah are Sevier, Little Salt, Preuss, and Fish Lakes, all lying south of Lake Utah, and on the slope west of the Wahsatch Mountains, collecting the waters of rivers formed by the united waters of the springs and the melted snow and ice of the lofty peaks, none of these lakes having an apparent outlet,

The section lying on the eastern slope of the mountains contains no lakes, its entire water system being composed of the Colorado of the West and its tributaries, including Grand, Green, San Juan, and White Rivers. These rivers frequently intersect the mountain ridges of the country, running in cañons of immense depth with nearly vertical sides; debouching from these cañons as the lower plains or valleys are reached, the streams become broad and shallow, running in beds but slightly depressed below the surface of the earth, and sometimes dividing their waters into numerous rivulets, which wind over the surface of broad fertile meadows, irrigating the soil and producing luxuriant vegetation. The celebrated Grand Cañon of the Colorado commences in Utah below the magnificent valley in which Green and Grand Rivers unite to form the Colorado, and extends a distance of over four hundred miles into Arizona and Nevada, with vertical walls rising from 500 to 1,500 feet above the surface of the stream; the exterior banks of the cañon being from 2,500 to 4,000 feet above the bed of the river. A recent exploration of this cañon has discovered the geological formation of its walls to be principally of limestone and sandstone, but in certain sections composed of granite, and in others of extremely beautiful marble. More than two hundred minor streams empty into the Colorado over the sides of the cañon, forming cascades and waterfalls of almost every variety



and description, and producing violent disturbance of the surface of the stream, which is described as rapid, turbulent, and attended with dangerous eddies and occasional falls throughout the entire length of the magnificent fissure. Below the Grand Cañon, however, from Callville, in Nevada, to the Gulf of California, the Colorado is a placid stream, with a quiet even current, and, although somewhat obstructed in places by shifting sand-bars, is readily navigated by steamers of light draught; in view of which, the inhabitants of Utah have experimented upon the practicability of using this river for the portage of their heavy freights in conjunction with an excellent road from Callville, connecting with the Los Angeles and Salt Lake City wagon-road, which traverses the plains and valleys of Southeastern Nevada and Western Utah, following an almost continuous line of cultivated lands and prosperous settlements, in the vicinity of rich mineral deposits, mineral and other springs, numerous rivulets and rivers, and beautiful lakes. This experiment was attended with complete success, and the fact established that this route possesses superior advantages as a line of transit for heavy freights, both to and from the center of this rapidly developing region of our country, inviting its adoption for the line of continuation of the Utah Central railroad.

The two principal divisions of the surface of the Territory, lying respectively on the eastern and western slopes of the Wahsatch Mountains, are severally intersected by the Uintah Mountains of the eastern section, and the Thomas, Guyot, and Iron Ranges of the western part, besides numerous minor ranges and spurs of great height, giving continual diversity to the scenery, and constituting the sources of streams of excellent water, from which the intervening valleys derive their remarkable beauty and fertility. The eastern slope is more mountainous than the portion lying within the great basin, and contains more numerous streams; but the high cañons intersecting the mountain ridges as channels for the water-courses prevent the availability of the water for irrigation, although not interfering with the business of stock-raising on the surrounding hills and elevated plains, as the herds of cattle and sheep find no difficulty in descending rocky defiles leading to the streams at short intervals throughout the extent of most of the cañons. The delicious grasses with which these hills and plains are covered render this region admirably adapted to grazing, and particularly to sheep-culture; the latter industry being pursued in this section to an extent hardly credible in view of the low estimate generally placed upon these dry elevated lands as to their ability to support animal life; the increase is rapid, the mutton unexcelled in delicacy and fatness, and the fleece of superior weight and texture. In the basin of Green River is a region of country nearly as large as the State of Massachusetts, which has been pronounced to be extremely well adapted to wool culture, and it now supports numerous large flocks of sheep of the best breeds in the country. As this section becomes more thickly settled it is presumed that means will be devised whereby the water now running in the depths of precipitous cañons may be brought to the surface of the high fertile plains for the purposes of irrigation and domestic economy, with but slight expense; the hydraulic power of the streams themselves, or the force of prevailing aerial currents, being probably sufficient for this purpose.

The indigenous grasses of Utah are alike on both sides of the divide, the prevailing species being the buffalo grass, upon which the herds subsist in the valleys during the entire winter without other food, and the sand grass, bearing a rich oleaginous seed possessing nutritive and fattening qualities equal to either oats or corn. The pastures of the high-

lands and mountains are preferred by both sheep and cattle in the summer season, the continuance of a covering of snow until late in the spring resulting in greater freshness and verdure of the herbage of these localities during the dry summer months; but the shelter from cold, sweeping winds, and the pasturage uncovered with snow afforded by the valleys, are necessary for the preservation of the herds in the winter season.

The most important settlements of Utah are in the vicinity of the western foot-hills of the Wahsatch Mountains, extending in a line running from north to south through the Territory, the natural advantages in favor of the selection of this longitudinal belt being the extraordinary beauty of the surface of the country and the more plentiful supply of water than exists on the plains further removed from the mountains.

More numerous discoveries of valuable mineral deposits, as well as springs possessing remarkable medicinal virtues, have been made in this section than other parts of the Territory; but this is probably owing simply to the fact that the more populous settlement has been necessarily productive of more thorough explorations. The valleys of Great Salt Lake, the River Jordan, Utah Lake, Sevier River, and Little Salt Lake are included within this belt, embracing the principal towns in the Territory, on the line of the Pacific railroad, Salt Lake City, and numerous other thriving towns and villages.

Among the most important mineral deposits of Utah are gold, silver, iron, copper, zinc, lead, coal, salt, sulphur, saleratus, alum, and borax. The iron occurs in almost inexhaustible deposits of red hematite ore of superior quality, and several founderies and manufactories of iron have already been established in the vicinity of the ore beds, producing machinery as well as mechanical and agricultural implements. The most extensive of the iron fields is in the southwestern part of the Territory, in Iron County, on the Pinto River, and includes the Iron Mountains with the foot-hills of the range and the adjoining valley, in the center of which Little Salt Lake is situated. Several mining towns are located here, and are steadily increasing in wealth and population.

The most extensive and important of the coal fields of Utah are situated in the vicinity of Coalville, in Summit County, and at the foot of the Wahsatch Mountains, in San Pete County, the coal being of a bituminous quality, burning with a bright-yellow flame and intense heat; the business of mining for this deposit being extensively pursued, and the fuel required for manufactures and domestic purposes in the principal cities and towns of the Territory mainly supplied from local mines. Extensive beds of coal in Beaver and Iron Counties, near the iron regions, have been discovered, and are now being opened, with the view of supplying the requirements of the iron works. The grading of the Pacific railroad led to the discovery of numerous beds of bituminous coal, one of the most important of which is in Echo Cañon, the thickness of the coal strata along the line of this road varying from two to eighteen feet. Experiments looking toward the employment of coke manufactured from the bituminous coal and lignite of this section of country on the locomotives and in the machine shops of the Pacific railway have been instituted, accompanied with very promising results.

Rock salt is abundant in various sections of the Wahsatch Range, constituting a particular feature of the geological formation. In Salt Creek Cañon there is a mountain said to be entirely composed of this mineral in a condition almost chemically pure. A superior article of salt is manufactured from the waters of the salt lakes of the Territory. One of the most extensive beds of sulphur on the continent exists in



Millard County, about thirty-five miles south of Fillmore. Building-stone of almost every description abounds in Utah, and is generally used in the construction of dwellings, factories, mills, stores, and public buildings.

The circumstances accompanying the settlement of Utah have been such as to induce the population to engage in agriculture, horticulture, herding, and manufactures, rather than prospecting for valuable mineral deposits, or in extracting precious metals when accidentally found, the expense of transportation of ores and machinery, the high price of labor, and the demand for products necessary for the support of human life in the adjoining States and Territories, resulting in the rejection of mining for more certainly profitable branches of industry. But the existence of ores of gold, silver, and copper, in various sections of this Territory, in large quantities and of excellent quality, is established; the locations of the most valuable discoveries of the precious metals being in the Rush Valley and Minersville districts, Cottonwood Cañon in the Wahsatch Mountains, Bingham Cañon in the Oquirrh Range, and on Pine Creek, a tributary of the Sevier River. A promising feature of the result of recent prospecting is the discovery of rich specimens of argentiferous ore in the southwestern part of the Territory, in a continuation of the geological formation which holds the rich silver ores of White Pine in Nevada. As the cost of labor and of transportation in Utah is decreased by augmented population and the construction of railroads, the mineral interests of the Territory will be rapidly developed and add greatly to its wealth and importance.

The most important industries of Utah are agriculture and horticulture, accompanied with irrigation, the facilities for which have been carried forward to a condition of great perfection under the pursuance of a policy of strenuous and systematic energy and perseverance inaugurated by the earliest settlers at Salt Lake City in 1847, with no relaxation, as wealth and plenty have followed their labors, the result exceeding the anticipations of the most sanguine in the certainty and abundance of the crops. The building of reservoirs and canals has been prosecuted until a perfect network of earthworks required in the irrigating process extends over the settled portions of the beautiful valleys, supplying the only requisite naturally wanting for exceeding fertility, the soil being principally formed of disintegrated feldspar rock mixed with detritus of the limestone entering so largely into the composition of the surrounding mountains, decomposed vegetable matter, and friable clay. The crop of cereals produced in this manner is considerably over a million bushels per annum, supplying the requirements of the local population as well as that of adjacent mining regions, fifty and sixty bushels of wheat to the acre being a frequent crop, and ninety-three and a half bushels having been gathered from an acre in the vicinity of Salt Lake City. Barley, oats, rye, buckwheat, flax, and hemp succeed equally as well as wheat, and are extensively grown; but the nights are generally too cold for large crops of corn except in the southwestern part, near Rio Virgen, where corn and sorghum thrive, and cotton is found to produce such excellent crops as to induce considerable immigration to that section specially to engage in its culture. Potatoes, hops, garden vegetables, melons of all kinds, strawberries, raspberries, currants, gooseberries, apples, pears, plums, cherries, peaches, apricots, and all other fruits of the temperate zone, are produced in this Territory in abundance; large quantities of fruits and berries being dried, canned, and preserved for exportation to the mining regions of Idaho, Montana, and Nevada.



The future prospects of agriculture and horticulture in Utah are excellent, the belt of tillable soil adjoining each water-course being constantly widened by a constant augmentation of the supply of water for the nourishment of vegetation. The yearly increase of rain-fall and the rise of the lakes and rivers is distinctly discernable, rain sometimes coming at seasons when it was formerly unknown, and the rise in Great Salt Lake being ascertained by measurement to be something more than a foot in each year. As the surface becomes more highly cultivated, with fruit trees, shade trees, and cultivated forests of considerable altitude, density, and extent, interspersing the hillsides and the valleys, it is reasonable to suppose, in view of results perceptible in sections of our country, once treeless but now well wooded, that abundance of water will reach the growing crops by natural precipitation, and that the lakes must some time find surface outlets to the ocean, and the rivers greatly increase in size and importance.

The manufactures of Utah are already extensive and important, embracing those of almost every necessary requirement of civilization, and furnishing employment to a large number of persons, there being in this Territory, in successful operation, three cotton factories, one woolen factory, one hundred flouring mills, fifty lumber mills, and numerous manufactories of agricultural implements, steam-engines, boots, shoes, leather, dye-stuffs, furniture, cutlery, hardware, jewelry, and brushes, besides breweries, iron furnaces, and establishments for the propagation of silk-worms and manufacture of silk, the value of the annual product of manufactures being estimated at over three-fourths of a million dollars. The amount of capital invested in the leading manufactures is estimated as follows: Woolen mills, \$200,000; cotton mills, \$100,000; lumber trade, \$400,000; flouring mills, \$700,000; leather, \$200,000; alcohol, \$30,000.

The timber lands of Utah are comprised in about two million acres of pine, fir, and similar evergreens, on the slopes of the mountains, and extensive copses of willow, box-elder, birch, cottonwood, spruce, and dwarf ash, in the river bottoms, added to large tracts of the soil of both valleys and hill-sides, which have been planted with varieties of hard wood in order to supply the natural deficiency, the young artificial forests thriving vigorously, and promising soon to equal the requirements of the settlers with regard to such timber.

The aggregate distance traversed by the line of the Union and Central Pacific railroads through the Territory is 205 miles, the former road from the Wyoming boundary to the junction at Promontory Point, immediately north of Great Salt Lake, comprising about two-thirds of this distance. It is proposed, however, to make the permanent junction of the two roads at Ogden the point of connection with the Utah Central railroad, now in course of construction, and nearly completed to Salt Lake City, a distance of about forty miles from Ogden in a southerly direction. An early continuation of this latter road is projected, to follow the line of settlements at the western base of the Wahsatch Mountains, northward to the rich mining regions of Idaho and Montana, and southward through the Territory.

The aggregate value of the raw material annually produced in Utah from agriculture, mining, &c., is estimated at \$3,500,000; the annual aggregate of secondary values added to raw material by chemical and mechanical processes, \$760,000; aggregate annual profit of capital invested in commerce of all kinds, \$340,000; aggregate annual profit of capital invested in banking, insurance, &c., \$30,000; annual profit of capital invested in public transportation, exclusive of railroads, \$15,000;

aggregate annual compensation of clerks, messengers, conductors, &c., \$270,000; aggregate income of lawyers, physicians, clergymen, &c., \$50,000; annual aggregate of wages paid to domestic servants, \$17,000. The estimated value of real and personal property in the Territory is \$12,000,000.

The capital and principal city of Utah is Salt Lake City, formerly called Great Salt Lake City, the name having been changed by act of the territorial legislature, approved January 29, 1868. It is situated in the valley of the Jordan, west of the Wahsatch Mountains, fifteen miles south of Great Salt Lake, and is beautifully laid out in squares of ten acres each, subdivided into lots of one and a quarter acres each, on which are neat and commodious residences, surrounded by fruit and ornamental trees and gardens of vegetables and flowers, except in the business portions of the city, where are substantial and handsome solid blocks of buildings. The streets are 128 feet wide, with rows of flourishing shade trees separating the sidewalks from the carriage roads, and streams of water from the mountains running along the paved gutters, supplying the requirements of household purposes and irrigation. This city occupies an area of nine square miles, and has a population of nearly twenty thousand, which is constantly increasing—the beauty and wealth of the city, the attractiveness, centrality, and salubrity of its location uniting to render it one of the most attractive places of residence between the Mississippi Valley and the Pacific Ocean. The entire number of the cities and towns in the Territory is one hundred and thirty-seven, eight of these containing a population exceeding three thousand, and several others having more than one thousand inhabitants.

For surveys in Utah during the present fiscal year there was appropriated, by act of March 3, 1869, the sum of \$25,000; and the greater portion of the appropriation of \$20,000 made by act of July 20, 1868, was unexpended at the commencement of the present season. In the annual instructions of this office, under the appropriation of March 3, 1869, the surveyor general was directed to expend the available means in extending the public surveys along the route of the Central Pacific and Union Pacific railroads as far as might be found consistent with the necessities of other portions of the Territory; and in pursuance with those instructions standard lines are now being extended over the region of country traversed by those roads, as well as other districts most preferred by settlers. Upon the completion of these fundamental surveys, township and subdivisional lines will be carried forward in those sections to the extent of the means provided. An estimate of \$25,000 is submitted herewith for surveys in Utah during the next fiscal year.

The number of acres disposed of in this Territory under the laws of Congress constituting the United States land system, since the opening of the land office at Salt Lake City in March last, is 62,851, leaving still subject to such disposal 54,002,224 acres.

ARIZONA.—This Territory, set apart from New Mexico by act of Congress of February 24, 1863, has for its northern boundary the State of Nevada and the Territory of Utah; on the east it is bounded by New Mexico; on the south by the Mexican State of Sonora; and on the west by the States of California and Nevada. Within these limits is embraced an area of 113,916 square miles, or 72,906,240 acres, being nearly twice the area of the six New England States.

Many mountain ranges traverse Arizona in a general southeast and northwest direction, the principal ranges being the Pinaleno and Santa



Catarina in the southeastern part, the Sierra del Carrizo and San Francisco in the northern part, the Mogollon Mountains in the eastern, and the Castle Dome Mountains in the extreme southwestern corner of the Territory, between the Colorado and Gila Rivers. The majority of these mountain ranges are of granitic formation, though in many localities there are extensive representations of other formations, usually of gneiss, talcose, micaceous, and clay slates. The soil of the valleys in many instances consists entirely of the detritus of these rocks, thus indicating that they extend from range to range. In the neighborhood of the Gulf of California metamorphic limestone accompanies these slates, forming separate ridges or inclining against the higher granite hills. In the southwestern part of the Territory, and intersected by the boundary line, a volcanic formation occurs, the surface being studded with extinct craters, while immense streams of lava cover the hills and plains.

The principal river of Arizona, the Colorado of the West, is formed by the union of the Green and Grand Rivers, the former rising in Western Wyoming, and the latter among the mountains of Colorado, and flowing through Utah in a southwesterly direction forms the greater part of the western boundary of Arizona, and empties into the Gulf of California.

The famous Black and Big Cañons of the Colorado, the latter more than four hundred miles in length, with perpendicular walls rising from twenty-five hundred to four thousand feet above the river, composed in some places of solid granite, and in others of limestone, with many varieties of marble, and presenting scenes of magnificence and grandeur equaled only by the wonderful Yo Semite of California, are among the many objects of interest to be found within the limits of this political division.

The extent of country drained by the Colorado and its tributaries is estimated at more than three hundred thousand square miles, and its length, including Green River, its longest branch, is nearly twelve hundred miles. The soil in the valley of the Lower Colorado is very fertile, and, owing to the mildness of the climate, many of the tropical fruits as well as the fruits and grains of the north may be raised in great perfection. The bottom lands, enriched by the annual overflow, produce abundant crops of wheat and other cereals, with all varieties of vegetables. Rice, sugar, and cotton, may also be raised on the bottom lands of the Colorado, the soil in many localities being especially adapted to their growth. This river is navigable for a distance of four hundred miles from its mouth, and affords great facilities for the transportation of supplies to the various military posts of this distant region.

The Gila River, a branch of the Colorado, rises in New Mexico, and, flowing west across the southern part of Arizona, enters the Colorado near the southwest corner of the Territory. The valley of this river, four hundred miles in length, is in most places adapted to agricultural pursuits, and with the aid of irrigation produces crops equal to those of the most favored localities of California.

Besides the Colorado and the Gila there are quite a number of rivers of considerable magnitude, of which the Rio Santa Cruz, Bill Williams Fork, Little Colorado, Rio Puerco, and the Rio Verde, or San Francisco, are the largest. These rivers, though not navigable, afford ample supply of water for irrigating the rich bottoms, which in many places are of considerable width, and supplied with sufficient timber for fuel and building purposes. The valley of the San Pedro constitutes the best agricultural portion of the Territory south of the Gila River, having a length



of considerably more than one hundred miles, with exceedingly productive soil, especially near the junction of the San Pedro with the Gila, and at the mouth of the Arivypa. A fine growth of ash abounds throughout the valley and the Santa Rita Mountains, which form the dividing ridge between the San Pedro and Santa Cruz. An unlimited supply of pine and oak also exists in this region. A portion of the valley of the Santa Cruz is covered with a heavy growth of cottonwood, and southward, toward the Mexican line, are extensive grazing lands. The Lonoita Valley, opening into the Santa Cruz near Calabazas, is about fifty miles in length, while in no place is it more than one mile in width. This valley, occupied principally by Americans, is especially adapted to the raising of cereals, and many of the farmers cultivate two crops each year of wheat, corn, beans, and other vegetables. The valley of the Rio Verde has an excellent supply of oak and fir timber, and scattered over its entire length are extensive ruins, showing that it was once occupied by a numerous population.

Tucson, the capital of Arizona, is situated in the valley of the Santa Cruz, on the direct road from the Rio Grande to Fort Yuma, and is surrounded by extensive tracts of arable land, which, with the aid of irrigation, produce abundant crops of wheat, corn, and other grains. The inhabitants number about three thousand, a large portion of whom are Spanish. Prescott, one hundred and forty miles east of the Colorado, is the center of an important mining region. La Paz is a mining town on the Colorado, one hundred and fifty miles above the mouth of the Gila. It has a considerable trade, and steamers navigate the river above and below this point. Mines of gold and quicksilver are found in this vicinity. Arizona City, at the mouth of the Gila, Wickenburg, Phoenix, Florence, and Tubac are among the other towns. The entire white population of the Territory is estimated at ten thousand.

With the exception of the country in the vicinity of the Lower Colorado and Gila, the climate of Arizona is delightful throughout the year. The heat is not excessive during the day, while the summer nights are invariably cool and refreshing. Except in elevated localities, snow seldom falls, and never lasts more than a few days. Frost is of rare occurrence. The Lower Colorado and Gila have a winter climate similar in many respects to that of Italy, but the summers are excessively warm. The rainy season in Arizona is from June to September, inclusive.

The American settlements are principally confined to the center of the Territory; in and near the Santa Cruz Valley, and on the Lower Gila, at the gold mines. Of the Indian tribes of Arizona, the Pimos, Maricopas, Papagos, and Yumas are friendly to the whites. The first-mentioned tribe is a brave and hospitable race, living in villages, and their well-cultivated fields of wheat, corn, pumpkins, melons, and beans, with extensive and well-made irrigating canals, attest their superiority over the other tribes of the Territory. In 1862 this tribe sold over a million pounds of wheat to the government, besides a large amount of other produce; and in 1863 they furnished the military authorities six hundred thousand pounds, besides disposing of considerable quantities to the miners and traders. Between the Pimos and the Apaches, one of the most savage tribes within our borders, a relentless warfare is carried on from generation to generation, the former being usually the victors in their frequent encounters.

Like most of the States and Territories west of the Rocky Mountains, Arizona abounds in mineral wealth; mines of gold, silver, copper, and lead are known to exist in nearly every portion of the Territory, and many of them have been worked to a considerable extent at various times since the first occupation of the country by the Spaniards, and

those in operation at the present time yield an ample return upon the capital invested.

The most important mine thus far known and worked in the Territory is the Heintzelman, or *Cerro Colorado*, situated twenty-four miles west of Tubac. First-class ore from this mine yields at the rate of one thousand dollars per ton; and one hundred and sixty tons of ore of the second class yielded twenty-four thousand dollars' worth of silver. The Mowry mine, formerly known as the Patagonia mine, situated within ten miles of the Mexican boundary, and at an elevation of more than six thousand feet above the level of the sea, produces an argentiferous galena impregnated with arsenic and easily reduced by smelting. Some of the ores from this mine yield three hundred and fifty dollars per ton, while the general average is about sixty dollars. Among the other productive mines are the Santa Rita, Salero, Cahuabi, and the San Pedro; and in addition to the mines now in operation there are evidences of extensive mining operations in former times throughout the entire southern portion of the Territory.

Besides the many veins of the precious metals existing in all parts of the Territory, extensive deposits of iron are found in many localities. Tin, nickel, and cinnabar occur in several localities. Platinum, in small quantities, has been found in connection with gold; and deposits of salt and coal of excellent quality have been discovered.

Owing to the want of facilities for transportation, the settlement of Arizona has hitherto been retarded; but a rapid development of both the agricultural and mineral resources of the Territory will take place upon the completion of the Southern Pacific railroad, already commenced in California; and from present indications it is believed that Arizona will take a leading position in the production of the precious metals.

By the act creating the Territory of Arizona, it was made a separate surveying district; but by act of July 2, 1864, it was consolidated with New Mexico; and by act of March 2, 1867, it was attached to the California surveying district. The junction of the Rio Salinas with the Gila River was adopted as the initial point of surveys in Arizona, and the standard lines governing the surveys extending north, south, east, and west from this point, are termed the Gila and Salt River base and meridian. Contracts were made in July, 1868, for the survey and subdivision of a number of townships in the valleys of these rivers, and the surveys have been satisfactorily completed and returns made. At the instance of the governor of the Territory, a contract was entered into for the survey of several townships in the valley of the Gila, east of the Pimo reservation. Partial returns of this work have been made to the surveyor general's office. By act of March 3, 1869, an appropriation of five thousand dollars was made for continuing the public surveys in this Territory, and the surveyor general was directed to expend the amount in those localities where the public interests would be best subserved, including actual settlements also in mineral districts, in order to facilitate the survey of mineral claims which are required to be connected with the public surveys.

There were surveyed in Arizona during the past year 215,496.59 acres of the public lands, making the aggregate area surveyed up to June 30, 1869, 686,027.34 acres. The area of public lands remaining undisposed of in Arizona, June 30, 1869, was 68,855,890 acres. The United States land office for the disposal of public lands in Arizona is situated at Prescott, where applications should be addressed.

NEVADA.—South of the southern boundary of Idaho is Nevada, the



third in size of the States constituting the American Union, extending from north to south 483 miles, and from east to west 323 miles, with an area of 112,090 square miles, or 71,737,600 acres. It is bounded on the north by Oregon and Idaho, on the west by California, on the south by California and Arizona, and on the east by Arizona and Utah, comprising the center of the great elevated basin extending from the Rocky Mountains westward to the Sierra Nevada Range, the mean altitude of which is four thousand feet above the level of the sea, being traversed in various directions by ranges of mountains rising from two thousand to eight thousand feet above the general surface of the country.

A peculiar feature of the State is the remarkable uniformity with which mountain and valley succeed each other in nearly parallel lines almost throughout its whole extent, the mountains being rocky and but sparsely covered with herbage or timber, and the valleys generally dry, sandy plains, interspersed with salt and alkali flats, also intersected with beautiful broad shallow streams, bordering on which are wide belts of alluvial formation, covered by luxuriant herbage varied with flourishing timber, the soil possessing elements of the greatest fertility.

The Sierra Nevada Range of mountains within the western boundaries of the State has an elevation of from seven thousand to thirteen thousand feet above sea level, and is covered with dense forests, the trees being principally varieties of evergreens of species abounding on the Pacific coast, many of them attaining to extraordinary circumference and altitude. The timber of the interior is principally composed of cottonwood, birch, willow, dwarf cedar, nut pine, or piñon, and other similar species, generally soft in texture and of small dimensions, but very useful for fuel in the absence of harder and larger timber.

The mountains are often intersected by ravines, constituting passes possessing great natural advantages for the construction of wagon roads and railroads, many of them furrowing the vast piles of granite and limestone at a level but slightly above that of the surrounding plains. These ravines are generally watered by streams flowing throughout the year, which often spread out over a wide section of fertile alluvion covered by luxuriant vegetation as they reach the valleys, forming a natural irrigating process, which supplies to a great extent the necessity created by scarcity of rain at certain seasons of the year and the aridity caused by the surface of the earth being above the point of dew condensation. Many of the streams disappear from the surface of the earth through the porous soil, after flowing for some distance along the valleys, evidently following the dip of the underlying rocks until the lower depressions of the surface are reached, when the sudden formation of some considerable river, a beautiful lake, or an extensive marsh appears as the result of accumulated underground drainings. In view of this fact, it is asserted by those who have fully investigated the subject that artesian wells may be sunk at different points throughout these valleys where the streams have disappeared from the surface, and in this manner sufficient water to supply all the purposes of irrigation, as well as domestic economy, and perhaps even factories and mills, may readily be obtained.

The rivers of Nevada are generally very shallow and unnavigable, with strong currents and occasional rapids, although there is not a cataract or cascade of importance in the State. Flowing through broad valleys the banks of the streams are generally low, with grass growing down to the water's edge, which is from two to ten feet below the level of the plain. The larger streams very rarely either become dry or overflow their banks, yet they sometimes disappear from the surface of the



earth, being dispersed over the subsoil of broad fertile meadows, beyond which they again unite in channels above the ground. Some of the rivers of the State have no apparent outlet, but, after flowing for nearly a hundred miles, gradually diminish in volume until only occasional pools appear, while still further on even these are wanting and nothing but the dry channels remain, along which, in the rainy season, the streams extend many miles further, to be finally lost, even then, in the sandy loam and loose subsoil. Other streams empty into beautiful lakes which are themselves without apparent outlet, the great altitude of this vast inland basin, the aridity of climate, and the porous nature of the alluvial deposits forming the surface of the earth, preventing the gathering of any excess of water sufficient to break the bounds of this independent aqueous system, and join some outside stream in its flow toward the ocean.

The water in most of the streams of Nevada is wholesome and palatable throughout their entire course, while that of the mountain rills is always excellent. All the lakes, as well as the larger and some of the smaller streams, contain an abundance of fish, some varieties of which, especially the trout in the mountain brooks, are unsurpassed in delicacy. The fish taken in most of the lakes and the lower sections of the streams are generally either of species inferior to those of the higher waters, or the same species deteriorated by the gathering impurities of water which in its course has dissolved many earthy salts while the menstruum has been constantly diminishing in volume by evaporation.

The principal rivers of Nevada are Truckee, which takes its rise in Tahoe Lake, flows northeast and northwest into Pyramid Lake; Humboldt River, which is formed by the Little Humboldt and other small streams in the northeastern portion of the State, takes a southwesterly direction and empties into Humboldt Lake; Walker River, rising in the southwestern section of the State and emptying into Walker Lake; King's and Quin's Rivers, in the northern part of the State; Reese River, in the central part; Muddy, Colorado, and Franklin Rivers, in the southern part; and Carson River, in the western part.

The principal lakes of Nevada are Pyramid, thirty-three miles long and fourteen wide, possessing great depth; Walker, nearly as large and quite as deep; Carson, nearly circular in form, having a diameter of about twelve miles, and being quite shallow; Humboldt, somewhat smaller and also quite shallow; Winemucca Lake, near Pyramid, eighteen miles long by eight in width; Lake Tahoe, one-third of which lies in Nevada, has a depth of fifteen hundred feet, and, although six thousand feet above the ocean level, never freezes; the temperature of its waters, which, in common with those of Pyramid Lake, abound in trout of large size and excellent flavor, remains nearly the same throughout the entire year. This lake is surrounded by high mountains, rising abruptly from its shores, clothed with vast forests of pine, spruce, and fir, and wearing a capping of snow during eight months of the year. There are numerous small shallow lakes, usually called mud lakes, which are quite extensive bodies of water during and subsequent to the rainy season, but generally become perfectly dry in the summer months. Their waters are strongly impregnated with alkaline solutions, which, upon evaporation of the water, appear in glistening sheets overlying the clay which constituted the beds of the former lakes, giving them, at this stage, the name of alkali flats.

The springs of Nevada—thermal, mineral, and otherwise—are numerous and of great size, some of them, from their large volume, high tem-

perature, and the composition of their waters, being considered great geological curiosities. They occur at all elevations and under nearly every peculiarity of condition—deep and shallow; cold, hot, and tepid; some in a state of ebullition and some quiescent; some impregnated with various mineral solutions, others perfectly pure; some isolated, others in groups; some cool and calm, others sending off clouds of steam, with a gurgling and hissing noise. These springs vary in diameter from one to thirty feet, and in depth from two feet to one hundred.

The hot and mineral springs are generally in the center of a tumulus or mound, formed of silicious or calcareous particles deposited by their own waters, sometimes covering several acres and rising to forty and fifty feet above the adjacent level. Sometimes the sides of the springs are formed of solid masses of lime or silica, rising several feet above the mounds; at other times, especially where the temperature of the water is high, no deposits occur in the immediate vicinity of the spring, the sides being then of ordinary turf, clay, or gravel. The water in most of these springs, although soft and agreeable to the taste when cold, contains many medicinal qualities both for drinking and bathing, having been used by the Indians, in view of these properties, for centuries, and being now resorted to with equal avidity by their more enlightened successors. The Steamboat Springs, in Washoe County, have thus far been of more frequent resort by the white people than any of the others, more on account of their greater accessibility than their superior sanitary properties, which are supposed to be not equal to those of many others not so well known. A chemical analysis of these springs shows them to contain principally the chlorides of sodium and magnesium, with soda in different forms, lime, silica, and organic matter. Others of the mineral springs have been found upon analysis to contain iron and sulphur in different proportions, and often combined with other mineral solutions.

The water surface of the State is estimated at 441 square miles, or 282,240 acres, which, being deducted from the total area, leaves a land surface of 71,455,360 acres, naturally divided into agricultural, mineral, grazing, reclaimable swamp, and timber lands, mountain ranges, and sandy desert, the proportions of each being given in the following estimate, based upon a careful comparison of the surveyed portions of the State, where the number of acres embraced by each division were scientifically ascertained with the whole surface, making due allowance for all known differences between the portions surveyed and those unsurveyed, viz:

Agricultural lands, 17,608,960 acres, embracing meadow lands bordering upon rivers, lakes, and mountain streams, also the richest portion of the sage-brush land contiguous to rivers. Mineral lands, 5,699,840 acres; this estimate being the minimum, based only upon such districts as were known to contain reliable mines; yet there is scarcely a mountain range within the State in which the precious metals cannot be found. Grazing land, 23,998,720 acres, embracing lands which might serve the purposes of agriculture with the aid of irrigation, the soil being very fertile, readily producing heavy crops of bunch grass of excellent quality. Reclaimable swamp lands, 74,880 acres, comprising the entire swamp lands of the State. Mountain range lands, not covered by timber and generally unavailable, except for stock ranges, 21,521,280 acres. Timber lands, 400,000 acres, embracing the lofty pine of the Sierras, contained within a narrow strip adjoining the California boundary, as well as the smaller growth of the interior. The number of acres of sandy region now unproductive, supposed irreclaimable, is 2,151,680.

The interest manifested in agriculture, horticulture, and stock-raising throughout Nevada has materially increased during the past year, serving,

in a great measure, to release the State from its former dependence upon California and Oregon, as well as adjacent Territories, for the vegetable produce, live stock, and dairy productions necessary for consumption as food by the mining population. The ascertained capacity of so large a portion of the lands for the production of fine crops of cereals, vegetables, and fruits is astonishing, in view of the late general impression that these lands were totally incapable of producing any vegetation of a higher grade than tule, buffalo grass, and wild sage. The soil in the vicinity of most of the streams is found to be a rich alluvion of great depth, formed of disintegrated rock, clay washings, and vegetable debris from the forest-covered mountains, and, on account of its light, friable condition, it is readily permeated by moisture from the intersecting water-courses, thus obviating the necessity of artificial irrigation. The tule and other swamps are found to be easily reclaimable by draining, and employing the surplus water in irrigation of higher adjacent lands; the rich black mold, formed of the decayed vegetable growth of centuries, united with washings of limestone, granite, and clay from the mountains, being relieved of superfluous water and allowed contact with the air, soon becoming sufficiently azotized to produce the heaviest crops of field or garden produce. The arid plains, upon which the only indigenous vegetation is bunch grass, sand grass, and wild sage, are found upon actual experiment to contain elements of great fertility, requiring nothing but irrigation to become first-class agricultural land. Among the most successful crops of the State are winter wheat and barley, which ripen sufficiently early to escape the drought of the summer months; oats, corn, potatoes, and garden fruits and vegetables. Thrifty orchards are now growing in several counties, promising for the immediate future abundant crops of apples, pears, peaches, and plums, and the grape-vine is said to thrive luxuriantly on the rich warm loam.

The pastures of Nevada are found to present very superior advantages for stock-raising and dairy farming, the indigenous grasses being unexcelled in attractiveness to gannivorous animals and in nutritive qualities, whether green with the moisture of spring and early summer, or dry upon the stalk, as in autumn and winter. One variety, known as sand-grass, bears large quantities of little black seeds, which are oleaginous and very nutritious, rendering this species especially inviting to the herds during the winter season, and remarkable for its fattening qualities. A variety of the sage brush called the white sage becomes very sweet and palatable to live stock after it is touched with autumnal frosts, although previously bitter and repulsive. It will readily support animal life during the winter. It is found that in most of the valleys of the State neither shelter nor food, other than that to be found in the pastures, is necessary for the wintering and maintenance in good condition of either cattle, sheep, or swine.

Not only the precious metals, but also minerals possessing value from their use in the mechanic arts and in domestic economy, are found in Nevada, many of the latter existing in such abundance as cannot fail to render them of great value when better facilities for transportation to the localities of manufactures shall have been introduced. Among these may be mentioned vast beds of salt, ores of iron and copper, rich in these metals; beds of sulphur, from which this substance can often be obtained quite pure, although it is sometimes combined with calcareous deposits; seams of lignite and possibly true coal—yet, so far as explored, Nevada is not a strongly marked carboniferous region; cinnabar, gypsum, manganese, plumbago, kaoline, and other clays, useful in the manufacture of pottery and fire-brick; mineral pigments of many kinds; soda,



niter, alum, magnesia, platinum, zinc, tin, galena, antimony, nickel, cobalt, and arsenic, besides various rocks useful for building purposes, as limestone, sandstone, granite, marble, and slate. The salt beds constitute not only an important feature in the chorography of the State, but also a considerable item in the economical resources, furnishing a great requisite for the reduction of most of the gold and silver ores. They sometimes extend over hundreds of acres with strata each about a foot in thickness, separated by thin layers of clay, the beds being encompassed by belts of alkali lands. The importance of these salt beds can be appreciated from the fact that the companies owning and working them can furnish the article clean, dry, and white, being in fact almost pure chloride of sodium, for \$40 per ton delivered at the mills, when formerly an inferior article brought from California would cost from \$120 to \$180 per ton at the mills. The deposits of salt in the State, however, are not confined to beds or plains, as they sometimes occur in elevated positions, the strata being many feet thick, imbedded in hills and mounds of such extent as almost to attain to the dignity of being called mountains of salt; one of these, situated in the southeastern portion of the State, is composed of cubical blocks of nearly pure chloride of sodium as transparent as window glass and often a foot square.

The silver mines of Nevada, thus far in the history of the settlement of the State, have been the great source of its wealth and the prime inducement for its settlement. At the time of the first discovery of these mines in 1859, eleven years after its acquisition by the United States under the treaty of Guadalupe Hidalgo, and ten years after its first settlement by the whites, it contained less than one thousand inhabitants, these being principally Mormon farmers and herdsmen located on the fertile lands of Carson and Washoe Valleys. Two years later, or in 1861, the population had increased to 17,000. The first discovery of the extraordinary wealth of this section of our country in deposits of silver ore occurred on the Comstock lode, from which vein bullion has since been extracted amounting to more than a hundred millions of dollars; the greatest yield per annum has been \$16,000,000, and the smallest yield since the mines have been fairly developed has been \$8,000,000, the variation of the amount of bullion produced being caused by the occurrence of alternate metalliferous and unproductive bodies of ore imbedded in the matrix, the effect of these variations being to produce great fluctuations in the value of the shares of companies operating upon this lode, and in their financial condition; for example, one year nearly four million dollars were paid in dividends to the stockholders of one mine, and the next year the managers of the mine were compelled to collect a heavy assessment on its shares in order to meet its expenses. Last year about ten millions of bullion were realized from the Comstock lode, and the rate of production has been steadily increasing during the present year, while expenses have been diminished by increased facilities for transportation. The deepest point at present attained by any of the forty mines now in operation upon this vein is one thousand four hundred and ten feet below the outcroppings; but several of the mines have reached such depth that the cost of hoisting the ore as well as of pumping the water from the mines has been materially increased, and the profits of the enterprise greatly reduced. As a ready means of draining the mines, as well as of furnishing an easy outlet for the ore, it has been proposed to cut a tunnel through to the vein from the side of the mountain, at a depth of about two thousand feet below the outcroppings, the right of way having been granted by Congress to the pro-

jector of this enterprise; but want of sufficient capital has thus far prevented its prosecution.

The Comstock lode is situated on the side of Mount Davidson, at Virginia City, Storey County, in a heavy belt, consisting principally of metamorphic rocks; but trachyte occurs in many places in the immediate vicinity of the vein. It has a general north and south course and an easterly dip, having been traced on the surface for more than twenty-seven thousand feet, and actually explored for nineteen thousand feet; the latter distance comprising the locations of the principal mines. The western boundary or foot-wall of the vein consists of syenitic rock, divided from the silver ore by a seam of bluish-black crystalline rock, resembling aphanite and locally termed "black dike." The eastern boundary or hanging wall is not so well defined. For about sixteen thousand feet along the most developed portion of the lode it consists of ferruginous feldspathic porphyry in various stages of decomposition up to that of plastic clay. Taken as a whole, the Comstock is the most valuable silver-bearing lode yet found in Nevada, equaling any deposit of the precious metals ever encountered in the history of mining enterprise, and even surpassing the famous mines of Mexico and Peru.

Other rich, silver-bearing lodes are being worked with success in Humboldt, Esmeralda, Lander, Nye, and Lincoln Counties, gold mines in Lander County, and copper mines in Douglas County; but the mining interest of the State, aside from that still drawn to the Comstock lode, now centers in the recent developments in the White Pine district, in the county of the same name, lately segregated from Lander County. This district comprises an area of about twelve miles square, covering a bold chain of hills whose general altitude varies from six to nine thousand feet, although several high ridges reach an elevation of eleven thousand feet, and whose sides are covered with a dense growth of white pine, from which these mountains were named, and subsequently the district and county. The White Pine mines are situated one hundred and twenty-five miles east of south from Elko station, on the Pacific railroad, and about the same distance south of east from Austin, there being regular communication with both of these places by excellent stage and freight lines. The principal settlements of this district are Hamilton, Treasure City, and Silver Springs, or Sherman; the former two having each a population of about three thousand, and the latter about one thousand, and each of these places having a daily newspaper.

The discovery of the wealth of the silver mines of White Pine was made in May, 1868, the existence of silver ore at this point having been established some months previously. There are apparently several distinct lodes traversing the district, all possessing the same general characteristics, holding the metal in the form of a chloride, for the reduction of which the process of roasting with salt, required by the ores of the Comstock and several other of the principal lodes of the State, is quite unnecessary, and the present yield of ore is regarded as rich as any ever known in the world, the greater portion milling from eight thousand to twenty thousand dollars in bullion per ton, and none being sent to the mills which is found upon assay to contain less than three hundred and fifty dollars per ton. The yield of these mines will more than prevent any falling off in the amount of bullion produced in the State, by variations of the yield of the Comstock lode, and when fully developed must increase the annual State product to an amount far in excess of that realized during any former year. Several mills are now in operation in the district, and several others are in course of construc-

tion, the capacity of some of these mills being eight hundred tons of ore per month.

The completion of the Central Pacific railroad through the State materially increases the facilities for transportation of its produce, which will probably soon be still further promoted by the completion of the Virginia and Truckee railroad, now in course of construction, running from Reno station to Virginia, Carson, and Washoe Cities, through some of the richest agricultural and mining regions of the State, and the construction of roads from Oroville, California, to Virginia City, and from Gravelly Ford Station to White Pine and Austin.

Under the appropriation by Congress for surveying public lands in Nevada during the fiscal year ending June 30, 1869, one hundred and four townships were surveyed under sixteen different contracts, embracing an aggregate of 1,552,547 acres. There were also surveyed during the year fifty-two mining claims, the expense of which was covered by special deposits under the act of May 30, 1862.

Under the act of March 3, 1869, appropriating forty thousand dollars for surveys in this State during the year 1870, the surveyor general was instructed, by letter of July 7, 1869, to let contracts to the extent of said appropriation, selecting for the sphere of operations of his deputies those localities where surveys were most urgently required on account of the proximity of mining or agricultural settlements, not omitting the expenditure of a reasonable share of the amount in public surveys along the route of the Central Pacific railroad, in order to facilitate the selection of lands conceded by Congress to aid in its construction.

There have been surveyed in this State 2,565,085 acres, leaving still to be surveyed 69,172,515 acres. The number of acres already disposed of to settlers and others, under the various laws of Congress governing such disposal, is 4,656,103.90, and there still remain for sale and entry under these laws 67,081,496.10 acres.

#### FOURTH DIVISION—MINERAL, AGRICULTURAL, FUR, AND TIMBER REGION OF THE PACIFIC SLOPE.

This division includes the States of California and Oregon, and the Territories of Washington and Alaska, with an area of 931,649 square miles, or 596,248,960 acres. For the purposes of description, it will be necessary to subdivide it into northern and southern sections; the former, embracing California, Oregon, and Washington, includes 354,249 square miles, or 226,721,360 acres; and the latter, Alaska, 577,390 square miles, or 369,529,600 acres.

The southern section occupies the Pacific coast for over a thousand miles, with a breadth varying from two to three hundred miles. It is characterized by great salubrity and variety of climate, unique fertility of soil, and enormous deposits of the precious metals. Its natural scenery combines features of the most varied and picturesque character. Its manufacturing facilities are rapidly developing, including its extensive deposits of the useful minerals in close connection with the elements of motive power presented by its extensive forests and coal veins. Its water power is large and conveniently located. It excels in both cereal and pastoral agriculture, producing immense quantities of wheat and wool, while its peculiar climatic conditions are eminently favorable to silk-raising. Its fruits and wines have already rivaled the famous products of Southern Europe. It is capable of supporting a population equal to that now found in the whole western hemisphere. Its present



population is about three quarters of a million—the extent of public lands still open to appropriation being 194,518,462 acres.

The northern section, Alaska, separated by an intervening belt of British territory, occupies the northern corner of our continent, commanding the navigation of the Arctic and North Pacific Oceans.

It is now proposed to give an outline of each political division in the order named, beginning with

**CALIFORNIA.**—This great State, second only to Texas in size among the States of the Union, embraces the nine degrees of latitude which, on the Atlantic coast, would extend from Plymouth, Massachusetts, to Charleston, South Carolina. Its length is seven hundred miles, with an average width of more than two hundred miles. California contains an area of 188,981 square miles, or 120,947,840 acres—greater than the combined area of the six New England States, with New York and Pennsylvania. Of this immense extent there have been surveyed, up to June 30, 1869, 30,836,213 acres. The arable lands are estimated at 40,000,000 acres, one-third of the entire area of the State; those suitable for grazing nearly as much more, while a large additional surface may be rendered productive either by irrigation or protection from overflow, according to its situation; the aggregate productive area of the State being estimated at nearly ninety millions of acres. The remainder of the surface is covered by lakes, rivers, and other bodies of water, and also by mountain ranges, generally heavily timbered.

The mountain system of California, vast in extent, diversified in character, abounding in mineral wealth, and unsurpassed in beauty and grandeur of scenery, deserves especial mention. It may be classed under two grand divisions—the Sierra Nevada, extending along the eastern border, and the Coast Range, along the western—near the sea, as its name implies. These ranges uniting on the south near Fort Tejon, in latitude  $35^{\circ}$  north, and again in latitude  $40^{\circ} 35'$ , form the extensive and fertile valleys of the San Joaquin and Sacramento. These divisions embrace many separate groups of mountain chains differing in geological formation and mineral character. The Sierras, or Snowy Mountains, comprise a series of ranges seventy miles in width, while the several chains of the Coast Range aggregate forty miles in width, and extend from the northern to the southern limits of California. The Sierras may be traced in regular order for a great distance in two lines of culminating crests, but there is no apparent order in the position and direction of the peaks of the Coast Range, and many of the high mountains in close proximity to each other are remarkably different in their mineral composition. The peaks of this range rise to a height of fifteen hundred to eight thousand feet above the level of the sea. The peaks of the Sierra Nevada—Mount Shasta, Lassen's Butte, Spanish Peak, Pyramid Peak, Mounts Dana, Lyell, Brewer, Tyndall, Whitney, and a number of others—reach from ten to fifteen thousand feet above the sea. East of the culminating crest of the Sierras is situated a series of lakes—of which Klamath, Pyramid, Mono, and Owens Lakes, wholly east of the mountains, and Lake Tahoe—occupying an elevated valley at a point where the range separates into two summits. The southern limit of the depression in which these lakes are located is at the confluence of the Colorado and Gila Rivers. A similar depression exists on the western slope of these mountains, about fifty miles in width, also containing a series of lakes.

The section of country lying east of the range of culminating peaks of the Sierras is termed the Eastern Slope. The depression between the foot-hills of the Sierras and the Coast Range is called the California

Valley, while the Coast Range forms still another section. A further geographical division is made by drawing an east and west line across the State in the latitude of Fort Tejon, that part lying south of this line being termed Southern California. The country between this line and one extending east and west through Trinity, Humboldt, Tehama, and Plumas Counties, is called Central California; all north of this is considered as Northern California. Central California contains at least seven-eighths of the known wealth and population of the State.

The most thoroughly explored division of the Coast Mountains is the Mount Diablo Range, about one hundred and fifty miles in length by fifty in width. The peak from which this range takes its name was selected as one of the three initial points governing the public surveys in the State, its isolated position rendering it a marked feature of the landscape, whether viewed by land or sea, while from its summit may be had a more extended view than from almost any other point in the State. On the north, east, and south may be seen a large portion of the magnificent valleys of the Sacramento and San Joaquin, with the numerous flourishing towns and villages, surrounded by highly cultivated farms. Stretching away in the distance are the verdant plains and hill-sides, dotted with ranches and teeming with countless flocks and herds. Bordering this extensive vista on the east, and stretching along the horizon for more than three hundred miles, rise the Sierras, range above range, their rugged peaks extending upward to the regions of perpetual snow. On the west are the beautiful valleys of the Coast Range, the busy city of San Francisco, with its broad bay, in which the ships of every commercial nation ride at anchor, and in the distance the blue waters of the Pacific, flecked with the white sails of numerous vessels plying to and fro on the peaceful errands of commerce.

The most interesting and picturesque feature of California mountain scenery is the Yosemite Valley, six or eight miles in length, with an average width of not more than half a mile, inclosed by perpendicular walls of granite rising from three to five thousand feet. Over these walls pour streams of water from the narrow valleys above, some of them passing into mist long before they reach the bottom of the valley; others leaping by a series of falls from four to six hundred feet each; the Yosemite Fall is two thousand six hundred feet in height, or fifteen times that of Niagara. Through the center of the valley, among verdant meadows, groves of majestic oaks and pines, and thickets of willow, birch, and bay trees, winds the Merced River, which enters the valley by a descent of two thousand feet in two miles. This valley has been ceded by Congress to the State of California, to be held as a place of public resort.

On the whole coast of California but one navigable river, the Salinas, connects directly with the ocean; but a number, navigable for steamers, flow into San Francisco, San Pablo, and Suisun Bays, and are hence equally important for the purposes of trade and commerce as if they emptied directly into the ocean. Of these the principal are the Sacramento and San Joaquin, the former navigable for steamers and sailing vessels as far as Sacramento City at all seasons of the year, and by small steamers far beyond, into the interior of the country. The San Joaquin, which traverses one of the most beautiful and fertile regions in all California, is navigable for moderate-sized steamers within a few miles of Fort Miller, near the foot of the Sierras. North of the Golden Gate are a number of rivers of considerable magnitude, but their rapid descent from the interior precludes their use for the purpose of navigation.

Of the harbors of California, that of San Francisco ranks first—indeed



it is the most commodious on the Pacific coast—being fifty miles in length and nine in width, securely land-locked, protected by surrounding hills from the violent winds of every quarter, and approached by the Golden Gate, five miles in length, with a width of one mile, in which, notwithstanding the rapid outward current at ebb tide, there is never less than thirty feet of water. Next in importance is San Diego, four hundred and fifty-six miles south of San Francisco, and near the southern boundary of the State. It is protected on all sides from violent winds, easily approached through a channel half a mile in width, and of sufficient depth to float the largest vessels at all times. It has not, however, the advantages of San Francisco for inland traffic, though, if connected with the East by a continental railway, it might prove a formidable rival. The harbor of San Pedro, three hundred and seventy miles south of the Golden Gate, is formed by a spur from Point St. Vincent and Deadman's Island. This harbor is sheltered from all but southerly winds; yet the water for several miles from the mainland is very shallow, vessels being compelled to anchor two miles from the shore, and to receive and discharge their cargoes by means of lighters. The other harbors are San Luis Obispo, two hundred miles, Monterey Bay, ninety-two miles, Santa Cruz Harbor, eighty miles, and Half-Moon Bay, forty-six miles, south of San Francisco; and Drake's, Tomales, Bodega, and Trinidad Bays, and Crescent City Harbor, north of the Golden Gate. These are all more or less exposed to gales from certain points of the compass, and in order to render them perfectly secure breakwaters and other improvements are needed. It is probable, in view of the rapidly increasing trade of our western coast, that the general government may give the subject early attention.

There are a number of islands off the coast of California, varying in size from a few acres to a hundred and fifty square miles, the smaller ones being extremely rugged, and inhabited only by seals, sea-lions, and aquatic birds, while several of the larger are adapted to grazing; and on Santa Catalina Island several of the small valleys are under cultivation.

San Francisco, the commercial metropolis of the State, has a population of about 150,000. It is situated on the western shore of the bay of the same name, just south of the Golden Gate, the entrance to the harbor. A little more than twenty years ago the site was a desert of sand and clay hills, intersected by ravines, wherein grew a few stunted oaks. Here, in the short time that has elapsed since the first great rush consequent upon the discovery of gold in California, American energy has built up a great city. Hills have been leveled and ravines filled up at the expense of millions. Long streets of warehouses, stores, and elegant residences, large hotels, numerous churches, school-houses, and public buildings now cover the ground which was so recently a barren waste. At the wharves vessels from all parts of the world may be seen lading and unlading. Lines of magnificent steamers ply between San Francisco and the ports along the coast, the islands of the Pacific Ocean and the maritime cities of China and Japan. The entire trade with the northern and southern coasts centers here; the great valley of California pours in its produce of mining and agriculture, and Nevada adds her streams of gold and silver. With these immense commercial advantages, an unsurpassed climate, and a progressive and energetic population, the future of San Francisco promises to be one of unexampled prosperity. Sacramento, the capital of the State, is situated at the head of ship navigation on the Sacramento River, one hundred and twenty miles from San Francisco. It is the principal depot of supplies for mining the



region of the north. Several railroads center here; steamers communicate daily with San Francisco, and with the Upper Sacramento and Feather Rivers. The population is estimated at twenty-five thousand. Marysville, the third city of the State, situated on the east bank of the Feather River just above the mouth of the Yuba, has a population of eight or nine thousand, and, like Sacramento, is an important mining depot. Stockton, the county seat of San Joaquin County, has a population of about seven thousand. Among the other towns of note are Benicia, the former State capital, on the strait connecting San Pablo and Suisun Bays; San Diego, in the extreme southwest corner of the State, possessing an excellent harbor; and Los Angeles, the center of a region celebrated for fruit-raising. The climate of California, though varied, is not subject to the sudden changes of temperature incident to the Atlantic States. Snow is seldom seen along the coast and in the great valleys of the State, while the heat of summer is tempered by cool winds, which blow almost constantly from May to September. The annual rains begin in November, and continue, with occasional interruption, through December, January, and February—March and April being showery, resembling the April of the Middle States; from June to November rain seldom falls, and the country presents a parched appearance, naturally leading strangers to infer that agriculture was not successfully prosecuted. This, however, is not the case, as all grains and fruits receive such a start during the rainy season that they reach the most perfect maturity. On the Atlantic slope the approach of winter interrupts the labors of the farm, while in California it is just the reverse; the plowing and planting season continue from November to April, during which time the weather seldom interferes with out-door pursuits.

In this climate fruit trees bear early, produce abundantly, and ripen fruit in the greatest perfection. The central and northern counties produce all the grains and fruits of the temperate zone, while in the semi-tropical climate of Southern California the orange, lemon, olive, pomegranate, citron, almond, prune, pine-apple, cocoa-nut, plantain, and banana, as well as the fruits of the North, may be seen growing side by side in the greatest luxuriance. With the completion of the Pacific railroad commenced the shipment of the fruits of the Pacific coast to the cities of the East, and now the luscious pears, plums, grapes, and other fruits of California, may be seen on tables three thousand miles from where, a week previous, they were gathered.

Notwithstanding the perfection in which nearly every kind of fruit is produced in this State, the culture of the vine will, doubtless, maintain the lead it has already taken. It is estimated that there are thirty millions of producing vines in the State. Of these two-thirds are the native or Mission grape; it is very hardy, a constant and prolific bearer, and by different processes white, claret, port, sherry, angelica, champagne, and other wines, are manufactured from it. Foreign grapes are extensively cultivated by many vine culturists—the Black Hamburg, Reisling, Isabella, Catawba, Muscat, Tokay, and Tinto, being the most prominent, though many more varieties on trial might be mentioned. The average number of vines to the acre is nine hundred, and the product eight hundred gallons of wine and twenty of brandy, more than three times the average product in France.

Of the cereals, wheat, oats, and barley, find congenial soil and climate, and are raised in such abundance that there is large surplus for export. Rye, buckwheat, and Indian corn are but little cultivated; the latter, owing to the cool nights and the absence of rain in summer, can be raised only in a few favored localities.

Nature gives the agriculturist in this State great advantage over

foreign competitors. A shelter is seldom needed for the harvest; the expense of large barns and storehouses, and the carrying to and fro of the crop, is saved. The farmer need be in no hurry in harvesting or shipping grain, for showers are almost unknown, and the grain, owing to the climate, is dry and glutinous, keeping sweet a long time, and making the best flour in the world. Chinese help costs no more than white labor in the Eastern States, and there is a third more time for field labor than in the East. Fifty or sixty bushels of wheat to the acre are obtained, and during the second year forty bushels of "volunteer crop" grow from the waste of the previous season, the only expense being the harvesting. The average yield of the State is about twenty-four bushels to the acre, while that of the Eastern States is but fifteen. Owing to the want of interior railroads the farmers of many localities find some difficulty in shipping the products of their labor. This, however, will soon be remedied, and rich valleys, which now send nothing to market, will pour in their millions of bushels. Oats, which were at first but little cultivated, are now growing steadily into favor, the average yield to the acre being thirty bushels. Wild oats are found in every section of the State, and during the summer drought the grain, held firmly in the capsules, furnishing an abundant and nutritious pasture. Barley, which takes the place of the Indian corn of the Eastern States in the feeding of live stock, is a certain crop, and, like wheat, is much grown from volunteer crops. From recent trials it is found that malt liquors, equal to the best made in England, can be manufactured in San Francisco, and owing to the coolness of the climate the process may be carried on throughout the year.

The culture of hops, owing to the favorable circumstances of the soil and climate, has been attended with uniform success both on the river bottoms and the uplands; the freedom from dampness in the summer season protecting the vine from mildew, blight, and insects, the common enemies of the hop-grower of the Atlantic States. Tobacco has been raised to a considerable extent and of excellent quality, especially on the uplands. The tea plant has been imported, but has not yet been cultivated to any great extent, though the foot-hills of the Sierras are eminently adapted to its growth.

Although comparatively a new branch of industry, the raising of silk in California promises, in time, to become one of the most important agricultural pursuits. The soil in most parts of the State is peculiarly adapted to the growth of the white mulberry, while the climate, except in some localities on the coast subject to fogs in summer, is considered the best known for raising silk-worms. In almost every valley of the State persons can be found engaged in silk-raising, many of whom have invested considerable sums, and profitable returns are confidently expected during the present year. This occupation has been greatly stimulated by an act of the California legislature awarding liberal premiums for the planting of mulberry trees and raising cocoons.

On account of the aridity of the summer season there is little or no sod in California, the roots of the grass being killed by droughts, so that it is necessary for hay or pasture to renew sowing every year. The hay is mostly made from oats and barley cut while yet green, and is very nutritious. Timothy, orchard, redtop, and other grasses of the Atlantic States are at present limited to a few localities, but they will eventually be cultivated in certain valleys and on improved swamp lands. The tule lands furnish a coarse, wiry, and rather innutritious grass, and, being a sure crop, is of great value in seasons of extreme drought. In 1854, when the upland pastures failed, fifty thousand tons of this grass were



cured, and many cattle thereby saved that would otherwise have perished.

No country in the world excels California in its advantages for sheep raising. The mountain pastures afford abundant food throughout the year. No shelter is needed during the winter season, and the animals' preference for a wide range can be gratified to its fullest extent. In this congenial climate they multiply with great rapidity, and the fleeces exceed in weight and quality those of similar breeds in other localities. The diseases incident to the crowded pastures and folds of the East are unknown, and the cost of keeping so small as to render wool-growing one of the most profitable occupations. Three men are sufficient for the care of ten thousand sheep. The raising of cattle, horses, and mules is attended with the same advantages as sheep-raising.

During the past year the manufacturing interests of California have advanced with great rapidity. The old woolen mills have been running to the full extent of their capacity, while a number of new ones have gone into successful operation, and the demand for domestic cloths is steadily gaining on the imported article. The manufacture of flax and hemp bagging has been commenced, though the present supply is wholly inadequate to meet the demand for grain and wool sacks. There are about one hundred and sixty flouring mills in the State, having an aggregate capacity of fifteen thousand barrels of flour daily, or more than four million barrels per annum. Sugar refining is quite an extensive branch of industry, the raw sugars being obtained from the Hawaiian Islands, Central America, Manila, and Peru. One of the most important single branches of manufacture in the State is that of iron working. There are fifteen large iron-works in San Francisco, while in nearly every town of importance in the interior there is one or more. These works supply nearly all the machinery required for mining purposes on this coast, besides furnishing large quantities for Western Mexico; also, sugar mills for that country and the Sandwich Islands. There are more than four hundred saw-mills in the State, the original cost of which was nearly \$3,000,000. They have a capacity to cut over five hundred million feet of lumber annually. The greater part of the hard-wood lumber used is imported from the East, but no markets on the globe are better supplied with the different varieties of pine, fir, spruce, redwood, and cedar than those of California. Among the manufactures of lesser importance are those of brass founding, wire, rope, and cordage works, tanneries, powder and paper mills, glass and salt works, manufactories of wagons, carriages, and agricultural implements, furniture, type, tobacco, and numerous other branches of industry, all of which are in a prosperous condition. With the increasing and permanent settlement of the State a variety of new branches of manufacture is constantly being introduced, while those already established are being greatly extended.

California is abundantly supplied with timber of the finest quality. Forests of pine, fir, and cedar cover the mountains of the coast, while many varieties of deciduous trees fringe the margins of the streams. In Mariposa, Calaveras, Tuolumne, and Tulare Counties are found groves of the wonderful *Sequoia gigantea*, which far exceed in size any other trees in the known world. These trees range in height from two hundred and fifty to three hundred and sixty feet, and from fifteen to thirty-four feet in diameter. The wood is softer than any grown in the Eastern States, elastic, straight-grained, remarkably light, red in color, bearing a close resemblance to red cedar, and is very valuable. There appears to be a belt of these trees running along the slopes of the Sierras at an elevation



of about four thousand five hundred feet above the level of the sea. The redwood belongs to the same family with the sequoia, but is confined to a narrow belt of the Coast Range commencing south of San Luis Obispo County and terminating near the northern boundary of the State; this belt is not continuous, however, as there are several interruptions, one being of fifty miles; the average breadth of the belt is twenty miles. Many of the redwood trees are more than two hundred feet in height, and perfect in symmetry. The wood is red, like cedar, and is considerably harder than that of the mammoth trees; when polished it has a handsome grain, and is exceedingly durable.

The pines of California are classified into sixteen species, Of these the most valuable are the Monterey pine, found in the vicinity of Monterey and Carmelo, affording a very resinous lumber much used for planking streets, also for floors and bridges; the yellow pine, which attains a height of more than two hundred feet, with a diameter of seven or eight; and the well-known sugar pine, usually growing at great altitudes, sometimes reaching a height of three hundred feet; the wood, white, soft, and straight-grained, furnishes the best lumber in the State for "inside work" of houses. Several varieties of oak, more or less valuable for mechanical purposes, are found in the State, especially the white oak, possessing a very fine grain, and the chestnut oak, the bark of which is exceedingly rich in tannin. The white cedar is a noble evergreen, found on the Klamath Mountains at an elevation of five thousand feet. The red fir, growing in deep forests on the Sierras and Cascade Mountains, from 35° to 49°, and near the coast north of 39°, often attains a height of three hundred feet, and the wood, strong but coarse-grained, is much used for the rough work in houses and ship-building. Flowering plants and shrubs in endless variety cover the plains and foot-hills, and in the spring months, when these immense fields of wild flowers are in full bloom, the face of the country presents a picture not often seen outside of California.

The mountains of the State are richly stocked with a great variety of minerals, though only gold, silver, mercury, and copper have as yet been successfully worked. Previous to 1848 gold had been found in small quantities by Mexicans near the Colorado River, but it was not until that year that it became known that in the sands of every stream shining particles of the precious metal were to be found, and that the mountains were threaded by rich veins of gold-bearing quartz.

The production of the mines in 1848 was \$10,000,000, and the greatest yield was in 1853, when the amount was \$65,000,000. The total product of gold in the State since the discovery in 1848 is estimated at more than \$900,000,000. The gold belt lies along the entire western slope of the Sierras, the central counties being the richest portion. Although it is more than twenty years since the discovery was made, the main portion of the product of the State is still obtained from sand and gravel washings, rather than from quartz mining. The gold in the California quartz is remarkably free from sulphurets or pyrites; it is nearly uniform in value, and so simple is the process of extraction, that ore yielding but eight or ten dollars to the ton can be profitably worked. Ore producing more than fifty dollars per ton is found only in limited quantities. There are more than four hundred quartz-mills in the State, using in the aggregate five thousand stamps. The total production of quartz mining is about eight millions a year, and is steadily increasing in amount and certainty. The most profitable quartz mines are found in Amador and Nevada Counties, the Grass Valley district in the latter being particularly prosperous.

Although silver has been included among the metallic products of the State, the greater part of that shipped from San Francisco is from the mines of Nevada. Considerable quantities of this metal are obtained by separation from gold, which is always more or less alloyed with it; and in the southeastern part of the State are mines containing very rich ores. This is particularly the case in Alpine, Mono, and Inyo Counties. Of copper and quicksilver California has, during the last five years, exported about a million dollars' worth of each annually. The New Almaden quicksilver mine has but one rival in richness and extent—the old Almaden mine in Spain—and together they control the quicksilver markets of the world. Iron ores in inexhaustible quantities and of most excellent quality have been found in various localities, although the want of facilities for transportation has thus far prevented their being worked extensively. Platinum and iridosmine are found in small quantities in connection with placer gold; and zinc, cobalt, tin, antimony, arsenic, nickel, manganese, and chromium, all of more or less prospective commercial value, are known to exist within the State.

An excellent quality of bituminous coal is obtained from the coal beds of Mount Diablo, and the various companies engaged have been more than usually active during the past year, taking out much more than the ordinary amount of coal, for which they find a ready and remunerative market, with no prospect of a lessened demand or a failure in the capacity of their mines.

Six years ago California had less than one hundred miles of railroad; now the Central Pacific stretches across the State a distance of three hundred miles, continuing through Nevada and Utah to Promontory Point, where, as elsewhere stated, on the 10th of May, 1869, was laid the last rail of the great iron highway connecting the eastern and western extremities of the republic, and enabling the traveler to cross the continent from ocean to ocean, a distance of more than three thousand miles, in six days. The Western Pacific, one hundred and twenty miles in length, connects Sacramento and San José with a branch twenty-two miles long to Oakland, on the Bay of San Francisco, the seat of the University of California. Northward from Sacramento the California and Oregon railroad is in course of construction under the control of the Central Pacific, within the limits of the State. Connected with this road is the California Central, from Marysville to Roseville. A road, twenty-two miles in length, connects Sacramento and Folsom, and it is expected that the Placerville and Sacramento Valley road, thirty-five miles in length, will soon be completed. A road from Marysville to Oroville and the San Francisco and San José road have been in operation a number of years, and the latter has recently been opened to Gilroy, thirty miles from San José, and its extension to the thirty-fifth parallel only awaits location. A number of other roads in process of construction might be mentioned, while quite a number are projected, and but two or three years at most can elapse before the metropolis of the Pacific coast will be brought within a day's ride of the orange groves of Los Angeles and the snows of Shasta.

The surveyor general of California reports that during the past year surveys have been made in various parts of the State. Under the provisions of a special act of Congress the Mendocino reservation, fronting on the ocean, was subdivided, containing an area of 24,930.08 acres. A number of townships in Humboldt and Mendocino Counties, containing tracts of excellent timber, have been surveyed; contracts for the survey of nineteen townships in Tehama and Shasta Counties were made early in the spring, and the deputies are now in the field. A number of



townships within the limits of the Central Pacific railroad grant have been subdivided, leaving but few more to be surveyed within those limits. The lands formerly claimed by the ex-missions of San Gabriel, near Los Angeles, and San Luis Rey, in San Diego County, have been subdivided as public land, to enable parties claiming to have purchased under the rejected mission title, and those who hold by other acts of possession, to prove their rights to pre-emption. Under the provisions of the tenth section of the act of May 30, 1862, a number of isolated townships have been surveyed at the expense of the settlers. This law has proved of great benefit to the settlers in narrow valleys, by enabling them to have their lands surveyed and obtain title without awaiting the regular extension of the public surveys.

Surveys are in progress along the mining foot-hills from Mariposa to Shasta Counties for the purpose of enabling the settlers to secure permanent titles to their homes, and to enable the deputy surveyors to locate mining claims with reference to the lines of the public surveys. A contract has been let to subdivide the foot-hills lying south of the Merced River; another for the subdivision of the copper-mining region between the Stanislaus and Calaveras Rivers. Further north, contracts have been made for subdividing the mineral lands of Amador County east of Ione Valley, and the southern portion of Eldorado County, embracing many rich gold mines and some of copper. These surveys will also embrace some of the best grape lands in the State, and many small valleys and rolling hills suitable for the culture of wheat or barley. The surveyor general further reports that a Japanese colony has lately entered lands for the purpose of making silk, and perhaps of engaging in the culture of the tea plant.

Much good has been effected by the eighth section of the act of July 23, 1866, in constraining claimants under Mexican grants to come forward and have their surveys executed, and the premises thereby separated from the public lands. By act of Congress approved March 3, 1869, there was appropriated \$50,000 for the survey of public lands in California during the present fiscal year. The surveyor general, by letter of May 15, 1869, was instructed to let contracts under this law, selecting as the sphere of his operations those localities where the public interests might best be subserved, including actual settlements, or where immigration was most rapidly moving; also mineral districts, in order to facilitate the survey of mineral claims, which are required to be connected with the lines of public surveys in order to define their localities. In view of the fact that the Central Pacific railroad was completed to the eastern boundary of the State, it was thought proper to expend a reasonable share of the aforesaid appropriation in extending the public lines along the route of said road, during the surveying season, as far as practicable.

The attention of the surveyor general was called to the provisions of the eighth section of the act to quiet land titles in California, approved July 23, 1866, (Stat., vol. 14, pp. 220, 221,) and requiring him to extend the public lines in proximity to the class of private grants to which said section refers, and particularly in San Diego County.

The amount of public lands remaining undisposed of in California is 101,403,599 acres. United States land offices are located at San Francisco, Marysville, Humboldt, Stockton, Visalia, Sacramento, and Los Angeles, where applications to enter public lands should be addressed.

OREGON, now in the tenth year of its existence as a member of the Union, lies north of and adjacent to California, between the 42d and 46th degrees of latitude, its greatest extent from north to south being 275



miles, and from east to west 350 miles, embracing an area of 95,274 square miles, or 60,975,360 acres. During the past fiscal year the line of survey have been extended over 905,009 acres, making the total surveyed area of the State 8,163,447 acres.

Oregon may properly be divided into two distinct parts so far as relates to climate and agricultural capacities, viz: the eastern and western, lying respectively on the east and west sides of the Cascade Mountains, which extend from the southern to the northern boundary, the Columbia River running nearly parallel with the coast at a distance therefrom of about one hundred and ten miles. The Coast Range of mountains, commencing at the Bay of San Francisco, extends northward through the States of California and Oregon. In this State they consist of a series of highlands running at right angles with the coast, with valleys and rivers between, the numerous spurs having the same general direction as the highlands.

Western Oregon, the portion of the State first settled, embraces about thirty-one thousand square miles, or twenty millions of acres, being nearly one-third of the area of the whole State, and contains the great preponderance of population and wealth. Nearly the whole of this large extent of country is valuable for agriculture and grazing; all of the productions common to temperate regions may be cultivated here with success. When the land is properly cultivated the farmer rarely fails to meet with an adequate reward for his labors. The fruits produced here, such as apples, pears, plums, quinces, and grapes, are of superior quality and flavor. Large quantities of apples are annually shipped to the San Francisco market, where they usually command a higher price than those of California, owing to their finer flavor.

The valleys of the Willamette, Umpqua, and Rogue Rivers, are embraced within this portion of the State, and there is no region of country on the continent presenting a finer field for agriculture and stock-raising, because of the mildness of the climate and depth and richness of the soil. Farmers make no provision for housing their cattle during winter, and none is required; although in about the same latitude as Maine on the Atlantic, the winter temperature corresponds with that of Savannah, Georgia. From November to May the rainy season prevails; frequent showers occur until February, when a clear season often continues several weeks, followed again by frequent rains until about the first of May; between May and November rain falls sufficient to prevent drought, thick mists occasionally occurring during this period. The summer may be considered dry, yet seldom to the destruction of crops. The Oregon farmer west of the Cascades rarely realizes the necessity of irrigation. These valleys presented to the early immigrant an unbroken forest of magnificent evergreens, and to those who had not beheld the mammoth trees of California these must have appeared of giant growth; among them the fir tree shoots up to the height of two hundred and fifty, but often attaining three hundred feet, with trunks from four to fifteen feet in diameter. The value of these trees has been recognized by the establishment of numerous saw-mills at various points on the coast and on the Willamette River, for preparing lumber for market, and already several lines of sailing vessels of large tonnage are engaged in the lumber trade between Port Orford, Coos Bay, and other ports in Oregon, and San Francisco. The timber, on account of its immense size and superior quality, is particularly valuable for ship-building. Among other prominent forest trees found in this locality are the Oregon cedar, sugar pine, western yellow pine, and fragrant white cedar.

Throughout these extensive mountain forests there are numerous tracts lying sufficiently level for cultivation; but lands producing timber

of such valuable qualities, and in such extraordinary quantities, should be preserved as timber lands through all time, to supply the demand of the first settlers upon the extensive plains west of the Mississippi River, where there is a scarcity of timber. From reliable information received touching the character of these amazing forests, there is reason for stating that they are capable of producing one million feet of lumber to the acre.

Upon the Coos and Coquille Rivers, in the Coast Range, the land has been cleared and its fertility found extraordinary, producing all kinds of grain and vegetables in abundance. The soil and climate in the Rogue River Valley, in the southwestern portion of Oregon, are admirably adapted to the culture of the grape, which culture is rapidly increasing, and the product of the vineyard will soon become, as in California, an important article of export.

Heretofore Oregon has suffered from the limited communication with desirable markets for grain and produce, thus retarding her growth and wealth; but by the liberal and intelligent management of steam navigation companies and the late completion of railroads around the upper and lower Cascades in the Columbia River, the State is being rapidly developed, and was never so prosperous as at the present time, commerce rapidly increasing, and grain being shipped to Liverpool. Regular lines of transportation are established to New York and other Atlantic cities, and others are proposed to Australia, China, and Japan.

The projected railroad, passing north through the State of California, from its intersection with the Central Pacific, and thence continuing north across the entire breadth of Oregon to the Columbia, through that fertile portion of the State west of the Cascades, will, when completed, add largely to her wealth and commerce. The material for the construction and operation of the first fifty miles of this road, commencing at the Columbia River, was sent forward at the beginning of the year. It is anticipated that the Union Pacific road will connect with the Columbia River and Puget Sound road by the waters of the Malheur, being a natural division, and, proceeding down the John Day River through a rich and extensive region, will reach the Columbia River at the Dalles.

The important towns in the State west of the Cascades are Portland, the chief commercial city, with a population of about nine thousand, situated on the west bank of the Willamette River, twelve miles from its mouth and one hundred miles from the ocean by the course of the Columbia; next in importance is Salem, the capital of the State, delightfully located on the east bank of the Willamette, about forty miles south of Portland by the meandering of the river, containing a population of four thousand five hundred. The other principal towns are Oswego, Oregon City, Corvallis, Albany, Eugene City, Roseburg, and Jacksonville. At Oswego is located the first iron furnace on the Pacific coast. Eugene City is at the head of navigation on the Willamette, and has a population of two thousand. Oregon City, situated at the falls of the Willamette, has a woolen and paper factory, and will be a manufacturing town of importance. Albany is a prosperous town and known as the granary of Oregon, with a population of twenty-five hundred.

That portion of the State extending from the Cascades to Snake River, termed Eastern Oregon, has a much drier climate than that west of the Cascades, and is more subject to extremes of heat and cold; the greater portion of the soil is not so available for tillage, yet furnishes an extensive scope for grazing. Along the Columbia River, in the valleys of Umatilla and Walla-Walla Rivers, the soil is highly fertile,



the agricultural capacity excellent. Many thriving settlements, with extensive improvements in manufactures and agriculture, exist in this portion of the State. In the great valley of the John Day River, also bordering on the Columbia, are some of the oldest settlements in the State, extending a distance of nearly one hundred miles in length along the prairie bottoms of the river. The larger portion of this valley, as well as the Des Chutes and the country bordering on the declivities of the Blue Mountains, are fit for grazing only, and for this purpose are excellent. During the past fiscal year extensive surveys have been made in the valley of the John Day.

Settlements have extended over most of the country in the valleys of Klamath Lake, Lost River, Goose and Harney Lakes in the southeastern portion of the State, through which the Oregon Central military road passes. This is one of the finest sections of country in Oregon for agricultural purposes. Numerous tracts of land in the Ocheco Valley, in the central portion of Oregon, through which a military wagon road passes, have recently been settled and cultivated.

In the valleys of the Grande Ronde, Powder, Burnt, Malheur, and Owyhee Rivers, near the eastern boundary, are situated large tracts of tillable land. The soil is of good quality, and agriculture thrives. Many varieties of garden vegetables are said to succeed better in some of these valleys than in the Willamette, on account of the higher temperature of the summer. Timber is less abundant in Eastern Oregon than west of the Cascades; on the sides and summits of the Blue Mountains, and on various spurs and ridges which traverse this part of the State, are found the fir, cedar, hemlock, pine, and other varieties of forest trees.

The Columbia, Willamette, Snake River, and Clark's Fork are the four principal navigable rivers. All of these rivers have been and are now successfully navigated by steamers. The Columbia, one of the largest and most important rivers on the continent, passes through the wildest and grandest scenery, perhaps, in the world. The fir-covered mountains of the Cascade range on either side, with massive rocks thousands of feet high rising from its surface, with Mount Hood, St. Helens, and Rainier, from ten to thirteen thousand feet high, in the distance, piercing the clouds with their snow-capped peaks, form a scene of unsurpassed grandeur and magnificence.

A railroad has been recently constructed around the Cascades at a point on the river some sixty miles east of the mouth of the Willamette; the rapids here are similar to those of Niagara below the falls, and obstruct navigation for a distance of five miles. Forty-five miles above this point, at the Dalles, the river is again obstructed by rapids for a distance of fifteen miles, around which is railroad communication. From the latter point the river is navigable for a distance of one hundred and sixty miles to White Bluffs, or three hundred miles from the ocean. Snake River empties into the Columbia about twelve miles north of old Fort Walla-Walla, and is navigable as high up as Lewiston in Idaho, a distance of one hundred and sixty miles. The Willamette is navigable from its mouth to Eugene City, a distance of two hundred miles. The only obstruction to the navigation of this river is a fall of forty feet at Oregon City, making a portage of one mile necessary. Vast quantities of delicious salmon of many varieties abound in the Columbia and its tributaries, forming an important article of commerce.

On the banks of the Columbia are the towns of Astoria, Rainier, St. Helens, Dalles, and Umatilla. Dalles, situated at the upper rapids in the river, one hundred and eighty-five miles from the ocean, owes its importance to the interruption of navigation, requiring freight and



passengers to be transported by land a distance of several miles. The growth of the place must keep pace with the development of the basin of the Upper Columbia, all the commerce of which must go down the river.

The mineral resources of Oregon, though not so thoroughly prospected as those of adjacent States and Territories, are both extensive and valuable, and will, doubtless, at some future time form a prominent source of wealth. Placer mining has been carried on extensively and profitably in the southern counties since 1852, and the mines of John Day and Powder Rivers have yielded several millions of dollars since their discovery in 1860. The annual product of these mines, until within the last two years, has been from \$1,500,000 to \$2,000,000. In common with the surface deposits elsewhere, there is a gradual diminution as the placers become exhausted; new discoveries, however, are being continually made. Numerous gold-bearing quartz lodes have been discovered in various parts of the State, but none of them have been developed to any great extent. East of Eugene City, near the north branch of the Willamette, some excellent lodes have been prospected. The Blue Mountains in the vicinity of Canyon City, John Day River, abound in paying quartz.

By far the most important mineral yet discovered in the State is the vast deposit of iron known to exist between the Willamette River, above Portland, and the Columbia, at St Helens. Of the entire extent of this valuable deposit there is as yet but little knowledge, but it has been traced for a distance of at least twenty-five miles, and is, beyond doubt, inexhaustible. Copper has been found in the Calapooya Mountains, near the central portion of the State.

Oregon is peculiarly a crop-raising and fruit-growing State, though by no means deficient in valuable mineral resources. Possessing a climate of unsurpassed salubrity, abounding in vast tracts of rich arable lands, heavily timbered throughout its mountain ranges, watered by innumerable springs and streams, and subject to none of the drawbacks arising from the chilling winds and seasons of aridity which prevail further south, it is justly considered the most favored region on the Pacific slope as a home for an agricultural and manufacturing population.

Owing to the termination of Indian difficulties, and the appropriation of lands by Congress to aid in the construction of a railroad across the country to the Columbia, before alluded to, and the numerous wagon roads through the interior of the State in operation or contemplated, settlements have increased with wonderful rapidity during the past year, and the various private and public enterprises of her inhabitants have flourished in a remarkable degree. The quantity of land which has been disposed of by the government in the State is 9,237,620.75 acres, and the total number of acres under cultivation is not far from 500,000. The area of public lands undisposed of in the State is 51,737,739.25 acres. The land offices for the disposal of the public domain are located at Oregon City, Roseburg, and Le Grand.

WASHINGTON TERRITORY, the most distant northwestern section of the Union before the acquisition of Alaska, has the British possessions on the north, the Columbia River and Oregon on the south, the Territory of Idaho on the east, with the Pacific ocean on the west, embracing a total area of 69,994 square miles, or 44,796,160 acres, which may be classified with approximate correctness as follows, viz:

Timbered lands.....	20,000,000 acres.
Prairie lands .....	20,000,000 “

Covered by the waters of Puget's Sound, lakes, and bays .....	1,500,000 acres.
Mountains, (barrens).....	3,296,160 "

The surveys during the past fiscal year amounted to 600,879 acres, to which add the number of acres previously surveyed, 4,462,896, and we have for the total amount of surveyed lands in the Territory 5,063,775 acres.

The continuous chain of mountains known as the Sierra Nevada in California takes the name of Cascade Range through Oregon, Washington Territory, and British Columbia. They traverse this Territory, varying but little from a north and south course, at an average distance from the coast of one hundred miles, deriving their name from the innumerable beautiful cascades which pour from their crevices at various heights. This range, as in Oregon, separates the Territory into two unequal divisions, the eastern and western, differing from each other in climate, soil, geological character, and natural productions. The loftiest peaks in this range are Rainier, St. Helens, Baker, and Adams, each from nine to thirteen thousand feet in height.

The Coast Mountains do not traverse the entire breadth of the country, but are located between Hood's Canal and the ocean, in the northwestern portion of the Territory. Mount Olympia, the highest mountain in this range, attains the height of eight thousand feet, and is distinctly visible at sea many miles from the coast. The name Olympia is now generally applied to this range. Around and from the base of this main sierra the numerous mountains descend to foot-hills and spurs, abruptly terminating in the sandy beach of the ocean.

That portion of the Territory east of the Cascades is not very equally divided by the Columbia River, thus constituting three natural divisions: Western Washington, termed the Puget Sound country, Central Washington, or Yakama Valley, and Eastern Washington, sometimes termed the upper county, and sometimes the Walla-Walla Valley and Spokane Plains.

The field, orchard, and garden products west of the Cascade Range are similar to those of the Willamette Valley. The crops of wheat, barley, and oats, are equal to any region on the continent. In fruits, the apple, pear, cherry, and plum, are abundant and of excellent quality. The coolness of the nights is unfavorable to the maturing of Indian corn, peaches, and grapes, yet in well-sheltered places in the valleys these are successfully cultivated. This western section embraces Puget Sound Basin, the valley of the Chehalis, the basin of Shoal Water Bay, and the country drained by the Lower Columbia and its northern tributaries. Puget Sound, though properly the smallest subdivision, is the name given to that vast ramification of waters known by illustrious navigators as the Strait of Juan de Fuca, Admiralty Inlet, Hood's Canal, and Puget Sound, together with the almost innumerable bays, harbors, and inlets, each having a separate name. These waters, extending from the 47th to the 49th degree of latitude, cover an area of 1,500 square miles, with a total shore line of 1,594 miles.

There is no State in the Union, and perhaps no country in the world, of the same extent, possessing so many excellent harbors and such extensive facilities for commerce. At the head of Puget Sound is situated Olympia, the capital of the Territory. At other points on the borders of this great inland sea are the towns of Port Townsend, Whatcom, Steilacoom, and Seattle. Along Hood's Canal are immense saw-mills; also at Port Ludlow, Port Orchard, and Miller's. These mills manufacture annually forty million feet of lumber.



The forests embrace the red and yellow pine, of gigantic growth, often attaining a height of three hundred feet and from nine to twelve feet in diameter. This is now the great timber market of the Pacific coast, and the maritime nations of the world will doubtless, at no distant day, procure their masts and spars from this region. Vast quantities of lumber, besides wheat and fish, are annually exported to Australia, China, Japan, the islands of the Pacific, and ports on the western coast of South America.

The valleys of the Puyallup and Stuck Rivers, emptying into Puget Sound, afford a large quantity of good agricultural land. The soil in the river bottoms is thinly timbered with maple, ash, balsam, and willow. These lands yield heavy crops of wheat, barley, and oats, while vegetables attain enormous size. The highlands are generally rolling, and well adapted to cultivation.

In the valleys of the Skagit River, rising in the Cascade Range, the Stillaguamish, Snohomish, and Snoqualmie, also emptying into Puget Sound, are found, large tracts of cleared lands possessing soil highly fertile. Through the valleys of Yakama and Naches a military road passes from Fort Walla-Walla, across the Cascade, to Steilacoom. An extensive and rich agricultural region is found in all of these valleys, and is rapidly filling up with enterprising settlers. The greater portion of this section has been surveyed. In the valley of the Skokomish River, which takes its rise in the Coast Range and empties into Hood's Canal some thirty miles northeast of Olympia, the soil is equal to the best bottom land in the Western States. The average yield of potatoes to the acre is six hundred bushels, wheat forty, peas sixty, timothy hay five tons, and oats seventy bushels. Into Hood's Canal, at different points from five to thirty miles below the mouth of the Skokomish, several streams empty, the valleys of which are marked by the same general features as that of Skokomish.

The Chehalis River rises in the Cascade Mountains not far north of the Columbia, and is navigable for light-draught steamers at a distance of sixty miles from Gray's Harbor, into which it empties. The valley bordering this river is the richest and most extensive body of agricultural land in the western section, and well deserves the term given it, the garden spot of Washington Territory. The valley varies in breadth from fifteen to fifty miles. Surveys have been extended over a considerable portion of it during the past fiscal year. Shoal Water Bay, the most excellent harbor between San Francisco and the Strait of Fuca, is situated in the southwestern portion of the Territory, separated from the Columbia River by a narrow strip of land. The annual shipment of oysters taken from this bay amounts to forty thousand baskets. Codfish, halibut, and sturgeon, are also abundant. Cowlitz Valley, bordering on the Columbia, has fine agricultural land, both prairie and bottom.

The climate of Washington Territory west of Cascade Range, although lying north of Oregon, is similar to the climate of that State, and is essentially different from that portion east of the Cascade Mountains. It is not unusual for the winter months to be mild, without snow or ice. Reliable information has been received showing that during the past sixteen years but three winters have been known so severe as to render it necessary to house and feed stock. The prudent stock-raiser, however, provides from six weeks to two months' feed for the winter. The summers are unsurpassed in loveliness.

In the central portion of the Territory, situated between the Cascade Mountains and the Columbia River, with the exception of the valleys of the Yakama, Methow, Okinapum, and Ne-hoi-at-pu-gun, the soil is usu-



ally thin, sterile, stony, and dry. On the tributaries of the Yakama, particularly toward its upper waters, the land is highly fertile and well adapted to most crops. The same is true of Yakama Valley itself. Surveys have recently been extended over a large portion of this region, and extensive settlements exist. The Ne-hoi-at-pu-gun has numerous beautiful prairies in its valley, and the hills surrounding it, partially wooded, are to a great extent arable. Timber of large growth is scarce in this section of the Territory, with the exception of the country along the northern tributaries of the Yakama, where good building pine is abundant. Where proper attention is exercised by the farmer in regard to seed-time in Central Washington, no danger need be apprehended from droughts.

The Columbia River, traversing the whole breadth of the Territory from north to south, and then forming a large part of its southern boundary, constitutes a main artery for travel and transportation of grain and produce from the great interior to the ocean, and, in the present incomplete condition of roads *via* the Cascade Range, affords the channel of communication between the inhabitants separated by that mountain chain. The great importance of this river must be acknowledged when the statement is made that a land portage of only four hundred and fifty miles is required to connect the navigable waters of the Missouri and Columbia.

East of the Columbia River the greater portion of the country is uncultivated. The Colville Valley, in the northeastern portion of the Territory, has large quantities of land surveyed, and numerous thriving settlements exist. The Walla-Walla Valley, in the southeastern portion of this region, between the Columbia River and Blue Mountains, contains over a million acres of arable land, and has a population of several thousand inhabitants. Large quantities of grain and produce, the result of their labors, are shipped down the Columbia River to a ready market. In the Columbia and Palouse Valleys are immense tracts of land suitable for agricultural purposes. Sheep-raising succeeds admirably in this locality.

The climate of Eastern Washington in winter corresponds with that of Pennsylvania. The summers are usually dry and hot. The annual fall of rain is only about one-fourth as much as in the vicinity of Puget Sound.

Coal of excellent quality is found in abundance near Bellingham Bay, Shoakmin River, and streams leading into Lake Whatcomb, west of the Cascade Mountains. Large quantities are annually shipped to San Francisco market, where it is principally consumed by ocean steamers. Gold has been found in considerable quantities in the streams flowing from the Coast or Olympia Mountains; and rich placer diggings exist on the banks and bars of the Yakama, Wenatchee, and Okinegon Rivers.

Washington Territory contains innumerable tracts of valuable but uncultivated land, unopened mines, undeveloped fisheries, and possesses almost every possible source of wealth and employment for human industry, to which the government invites settlers by the liberal offer of homesteads, presenting reasonable assurance of abounding wealth in the future. The projected railroads through the interior, and the private enterprise of her inhabitants, warrant the belief that the development of the wondrous resources of this remote political division will be most rapid.

There are 41,377,123.96 acres of public land undisposed of in the Territory.

THE UNITED STATES TERRITORY ON THE NORTH PACIFIC, OR THE RUSSIAN PURCHASE KNOWN AS ALASKA.—Five and a half degrees north of Washington Territory, separated therefrom by British Columbia, lies Alaska, the new territory acquired from the Russian government by the treaty of March 30, 1867, extending from north latitude  $54^{\circ} 40'$  to the Arctic Ocean, bounded on the east by British America, and on the west by the Pacific Ocean, Behring Sea, and Behring Strait.

The laws of the United States relative to customs, commerce, and navigation, were extended over this region by act of Congress approved July 27, 1868, and provision was thereby made for the collection of the national revenue; but the territorial organization has not yet been consummated, nor has provision been made for the recognition of individual possessory rights to any part of the lands, town or harbor sites of this portion of the public domain. In order that the residents of this section of our country may be granted the same privileges conceded to settlers elsewhere upon our public lands, it is recommended that the United States public land system be there extended by legislative authority, in order that encouragement may be given to the proper husbanding and development of the resources of the country. As commerce and travel gradually develop the facts relative to the ability of this Territory to support a large population in the comforts of civilization, the former popular prejudice against it, arising from its northern latitude, dies away. Emigration there increases, but this would undoubtedly be augmented by legislative provision for those who may desire to become permanent residents and acquire titles to lands in this remote region.

A brief comparison of the geographical position of Alaska with other better-known countries will serve to remove objections still prevalent against its value, and the utility of its purchase by our government. Its limits are  $54^{\circ} 40'$  on the south, and  $71^{\circ}$  on the north. The Scandinavian peninsula of Norway and Sweden extends from  $55^{\circ} 20'$  to  $71^{\circ} 12'$  north latitude, supporting a population of six millions upon an area of 293,334 square miles, or an average of twenty persons to the square mile. Alaska, with an area of 577,390 square miles, and, as far as developments have reached, possessing equal advantages with Scandinavia in point of resources and climate, would, therefore, seem capable of supporting nearly twice the population of that peninsula. Scotland extends from  $54^{\circ} 38'$  north latitude to  $58^{\circ} 40'$ , and supports a population of 3,061,251, according to the census of 1861, or about one hundred to the square mile. Few who are conversant with the history of the development of the arts and sciences and the commerce of Europe would venture to dispute the claims of both Scandinavia and Scotland to all the advantages of civilization, besides the admitted fact that they are among the foremost in shaping the destinies of Europe. Scotland enjoys a much more genial climate than Sweden and Norway, owing to the influence of the Gulf Stream; this fact may account for its greater population. Alaska enjoys similar advantages, arising from the warm current of equatorial waters, called by the Japanese the Kuro Siwo, or Black Stream, and by navigators generally the Japan Current. This stream, flowing through the China Sea opposite Nippon, in a northeasterly direction, strikes the North American coast about midway between Vancouver and Baranof Island—a branch, called the Kamtchatka current, separating from the main stream and running through Behring Strait into the Arctic Ocean. The narrowness of this strait admits of feeble reactionary currents from the north, and these are deflected toward the Asiatic continent by the projecting Aleutian Islands, the ameliorating influence of the Japan current upon the Alaskan coast be-



ing, therefore, almost entirely without intermission or abatement. This fact, together with meteorological observations by the Russian authorities, supported by later developments of American climatology, give ground for the presumption that Alaska assimilates more to Scotland than to Scandinavia in its climatic peculiarities, and indicates its capacity, especially on parallels south of 60° north latitude, to support a dense population.

It has been ascertained that the climate and soil of the lower portion of the Territory are adapted to very considerable agricultural production, especially the belt of land lying on the sea-coast, separating British Columbia from the Pacific Ocean, the region in the vicinity of Prince William Sound and Cook's River, Alaska Peninsula, and most of the Aleutian and other islands, more particularly Baranof, Prince of Wales, Tchit-chagof, Admiralty, Oonalaska, and Kodiak. These embrace lands suitable for agriculture sufficient to support a large population, and a climate which would compare favorably with that of some of the most densely populated portions of Scotland or Sweden and Norway. It is not probable that the agricultural products of Alaska will soon attain such importance as to furnish any surplus, but the other resources of the country are likely to attract thither a population sufficiently large to insure a handsome reward to the cultivator who may raise such fruits, vegetables, and grains, as can there be successfully grown. In that view the land interests must attain to no inconsiderable proportions, causing the disposal to settlers of such lands as are suitable for cultivation. The presence of many indigenous vegetables and fruits, and the great abundance of berries, are evidences of the availability of the soil and climate for successful agriculture.

The area of lands in Alaska which can be disposed of to settlers under the United States land system, for agricultural purposes, has been estimated by high authority at twenty thousand square miles, or twelve million eight hundred thousand acres, with a probability of its exceeding rather than falling short of that amount. This area would furnish, under the operation of the pre-emption and homestead laws, homes for more than one hundred and fifty thousand families, with profitable occupation in the cultivation of the soil. Besides this agricultural capacity, there will necessarily be many town and harbor sites to be disposed of by the government, situated upon lands valueless for other purposes than the accommodation of commercial and fishing interests. The government will also be called upon to convey titles to mining claims, there being tracts in Alaska known to contain ores of gold, silver, iron, copper, and coal.

Under the Russian occupation of Alaska the fur and fishing monopolies virtually controlled the country, and other possible resources, such as mining, agriculture, and manufactures, were subservient to the interests of those monopolies. This explains the neglect of the mines, and is the reason why the country was not cultivated further than what was necessary in raising the few vegetables absolutely required by trappers and fishermen. A new era is already opening in this region through American enterprise.

The existence of extensive deposits of gold in various interior sections of this Territory has been for some time past an established fact, the reports of travelers all uniting in this respect. Since the American occupation, miners have been known to realize from two to seven dollars per day in placer mining on the Stikine River, the placer detritus being considered, from the specimens obtained, sure indications of rich beds of ore in the hills and mountains.



A party of explorers started early last season from Oregon for the Skena River, and were for some time supposed to have been lost in Queen Charlotte's Sound; but the American consul at Victoria, Vancouver Island, subsequently announced their safety, stating that they had found a rich gold field in the vicinity of the Taquo River, where in lumps they were picking up the precious metals. This information was credited in Sitka, and every available vessel was reported to have been brought into requisition to convey adventurers to the place. The finding of gold in valuable quantities on the Stikine River, which is a large stream running through the southern portion of Alaska, just north of the boundary line, and rising in British Columbia, has been frequently reported from the times of the earliest travels in that region down to the present. The interest in the gold mines of the Territory seems to be increasing as new developments are being made, and miners are known to have left the gold fields of the Rocky Mountains and the Sierra Nevada in view of the inducements furnished by the mines of Alaska. Geologists have reported the existence of large deposits of silver and copper ore in this Territory, and almost inexhaustible beds of iron ore; but mines of these metals have not yet been worked to any extent.

Among the most prominent of the mineral deposits of the Territory are its extensive beds of excellent anthracite and bituminous coal found in many of the islands, and near the sea-coast on the main land, in close proximity to excellent harbors, promising our commerce convenient and inexhaustible coaling depots in the North Pacific; an advantage which is important in view of the fisheries and fur trade of that region.

The fisheries of Alaska are among the finest in the world, embracing salmon, herring, halibut, and codfish; these fishes seeming to throng its waters in unlimited numbers. Sturgeon, white-fish, and pike, are abundant in the rivers, and in the adjacent seas the whale fisheries are attended with better success than elsewhere in the waters of the globe. In 1857, of the six or seven hundred whalers of all descriptions sailing under the American flag, at least one-half, embracing most of the larger craft, were employed in the North Pacific. The business of fishing is carried on in this country with success during the entire year. On the ice-covered rivers in winter large oblong holes are cut and barrel traps of net-work are placed, which, being allowed to remain in the water but a very short time, are drawn up literally crowded with the finest and most delicate fish. It is in this manner, and by hunting, that the inhabitants of the interior during the winter principally subsist. In the warm summer months, when the rivers are open, spears, weirs and hand-nets are employed, while fishing with hook and line is a favorite method. The natives discard the use of barbed hooks, preferring to lose many fish rather than undergo the additional trouble of withdrawing the barb from strong cartilaginous gills. These fisheries were not absolutely closed to our countrymen by the Russian government prior to the acquisition of the Territory, but the disadvantages under which they labored, in consequence of their not being allowed to construct curing and drying establishments on the coast, compelling them to go to San Francisco for this purpose, were such as to materially restrict this interest and prevent its extension to any considerable importance. Besides the disadvantages mentioned, under the provisions of the treaty of 1832, our fishermen were liable at any time to be forbidden these waters. Since the transfer to American sovereignty, the free use of land and waters, affording unequaled facilities, has attracted a large number of our fishermen, and the product of their industry has attained to great importance. Adjoining the island of Oonalaska a superior bank for cod fishing has been developed, the fish

being unsurpassed in size, richness, and delicacy. There, too, exist excellent facilities for drying on the island. Other extensive banks are known to exist at different points on the coast, offering inducements which rival those of Newfoundland, Cape Cod, or any other point on the Atlantic coast. The salmon fisheries of Alaska are unsurpassed, the fish being of great size and delicacy, and so abundant at certain seasons of the year in the streams emptying into the Pacific as to perish in great numbers simply from overcrowding. A peculiarity of the salmon is, the further north it is found it improves in delicacy of flavor and texture. A large variety of salmon inhabiting the Yukon River is said to be extremely rich, the flavor unequaled, and the fiber delicate even in the largest, which sometimes are more than five feet in length. Their skins are used for the sides of boats. Herring and halibut are also very abundant in the waters of Alaska. The fishing for these is an enterprise which, though already very important, is yet capable of vast extension.

In the production of valuable furs it is presumed that this region is not excelled, the collection and exportation of these having been, up to this time, its greatest source of wealth and its most attractive industry. Merely from the islands north of the Aleutian Group, and the peninsula of Alaska, the Russian Fur Company reported the gathering annually of seal skins valued at \$540,000, and it is estimated that these skins, to the value of \$1,000,000 per annum, can, under judicious management, be taken from the same ground without depletion of the species. The seal is not confined to the more northern islands, the Aleutian and others still further south, as well as the shores of the main land, possessing these animals in great abundance, besides those bearing more valuable furs, such as the sea-otter, black fox, silver fox, sable, and ermine. Other valuable furs are here also obtained and are a source of great profit, such as beaver, lynx, marten, river or land otter, muskrat, mole, wolf, ursine seal, reindeer, and the skins of the black, brown, grizzly, and polar bears. The beaver is valuable not only for its fur but for its yielding *castoreum*, an article of commerce extensively employed by the medical fraternity. Russian official tables exhibit the collection of this article to the extent of 7,122 sacks, in the period of seven years, from the islands and shores of Alaska. The deer are very plentiful and valuable for the excellent venison they furnish as well as for their skins.

The committee appointed last February to consider the subject of protecting the seal trade recently reported that the Russian Fur Company collected during the season of 1866-'67, from the islands of Oonahaska, Omega, St. Michael, Atkha, Alton, Kodiak, and from Cook's Inlet, 7,990 muskrat-skins, 558 lynx, 6,738 foxes, 226 bears, 18,476 beavers, 6,738 martens, 2,765 land otters, and 3,905 sea otters, in all estimated in value at \$350,000. From the islands of St. Paul and St. George were taken 137,943 fur seals and 3,657 foxes, valued at \$900,000. The committee found that the total value of the furs taken by the company from the islands named during the years of 1866 and 1867 was \$1,250,900, an annual average of \$625,000; also that seal oil was collected in these years to the value of \$150,000, after leaving seals enough to supply food to the natives, besides large quantities of very rich fertilizing deposits of decomposed bones and flesh of seals. It was the opinion of the committee that the value of the fur trade of the country might easily be increased to \$1,400,000 per annum, and that there was no necessity for limiting the number of seals to be killed annually at 100,000, as a much larger number might be taken without injury to the interests of that branch of industry. As an instance of the wealth in furs in this Territory, it may be stated that a fur company of San Francisco, familiar



with the subject, have estimated that a revenue of \$200,000 ought to be annually secured to the government from the exportation of seal-skins from the islands of St. Paul and St. George alone.

Ivory has been extensively collected in this country for many years. In the period of seven years the Russian Fur Company is stated to have collected of this staple the amount of fourteen hundred and ninety poods, weighing thirty-six pounds each; the ivory being valuable, and finding a ready sale for various manufactures. Fossil ivory, the same as that in Siberia, has been found in the vicinity of Kotzebue Sound and the mouth of the Yukon, and it is believed that further research will reveal the supply of this material to such extent as to form the basis of a valuable commerce and extensive manufacture.

The forests of Alaska are said to be magnificent, being composed of pine, spruce, fir, hemlock, cedar, and other valuable timber, principally varieties of evergreens. Some of these trees attain a height of one hundred and fifty feet, with a diameter of over eight feet. Trees one hundred feet high are mentioned by travelers as of frequent occurrence. In view of the extensive fisheries of the Territory, the prospects of local trade, and the probability of the Pacific Ocean becoming more and more a great highway of the world's commerce, as increased facilities for inland communication between our Atlantic and Pacific shores are established, water distances lessened by artificial water courses, and better international relations established between Asiatic nations and those of Europe and America, these forests assume no inconsiderable importance for purposes of ship-building. The forests extend almost to the water's edge along the southern shores, but north and east of the Alaskan Peninsula they exist only in the interior, except at the heads of bays and sounds. The inland forests are abundant everywhere in the Territory, extending to within a short distance of the Arctic Ocean. In localities where there are no trees, or but few, as on the peninsula of Alaska, Kodiak, and Oonalaska Islands, and, in fact, most of the Aleutian Islands, their place is taken by a superior quality of grass for the rearing of cattle, while the climate in these sections is so mild that cattle would require but little housing during the entire year.

The principal rivers of Alaska are the Stikine, an important outlet of British Columbia, Liards or Turnagain River, the Colville, the Finlay, Cook's River or Inlet, the Atna or Copper River, the Kinjek, the Sushitan, the Kouskovein, the Inland River, and the great Kwichpak or Yukon, the Mississippi of the North, navigable for five or six months in the year for five hundred miles from its mouth. It is said that by steam navigation on this last river the produce of the Hudson Bay region might be transported to market at San Francisco at the rate of ten cents per pound, and prove more profitable than the transportation of the same at the present rate of more than a dollar per pound overland to the nearest point of railroad communication. Many other rivers of that country are navigable for hundreds of miles from the ocean, offering the best possible outlet for the productions of the country, and, with the Yukon, present a new and promising field for commerce and navigation to and from our Pacific ports.

The natives of Alaska are separated, by distinctive characteristics, modes of life, and governmental institutions, into twenty-four tribal organizations, presenting many indications of separate nationality. The southern and eastern tribes are more savage and warlike, like those of older portions of our territory. Northward they are peaceful, and on the peninsula and adjoining isthmus, as well as in the country north and east of that locality, they are remarkably docile. As a reason for this,



it is supposed that there were two distinct original races in that country; one, the Indian, coming from the south and east; the other, the Mongolian, coming from the north and west, over Behring Strait, by way of the Aleutian Islands, or across the sea from Japan; and that where the increase of population caused the inhabited territory of each to approach the other, admixture occurred and the varied present population is the result. The natives can be easily managed and kept in subjection by wise laws, rigidly enforced, and their labor is found to be very essential to the hunting and fishing interests, while it is supposed they can be readily induced to subserve those of agriculture and manufactures.

In the Aleutian Range, besides innumerable islets, there are fifty-five islands upwards of three miles in length, seven exceeding forty miles, and one, Oonimak, over seventy-three miles. In our part of Behring Sea there are five large islands, one of which, St. Lawrence, is more than ninety-six miles long. Several of the islands of the southeastern archipelago, near Sitka, are of greater extent than either of these, Prince of Wales and Kodiak being the largest.

The Russian inhabitants of Alaska were estimated at from 5,000 to 6,000, residing chiefly on the island of Baranof, where Sitka, the capital, is situated. Some of these still remain, while the place of those who have left is more than supplied by American immigrants. Of the number of the latter no correct estimate at this time can be made, but an idea of the increase in the population of the Territory may be gathered from the fact that the white population of Sitka, which under Russian rule was stated at 600, within a year after American occupancy was estimated at over 2,000. The various indigenous races within the Territory number from 50,000 to 60,000.

The climate of the coast of this Territory is found to be of nearly equal temperature with that of the Atlantic coast of New England, but differs from the same in not being so cold in winter nor so warm in summer; Sitka has a mean winter temperature the same as Philadelphia, but a mean yearly temperature the same as Portland, Maine. The climate of the islands and of the coast of the mainland as far north as the peninsula of Alaska varies but little from that of Sitka. As objections to Alaska for a place of residence have been raised on account of the humidity prevailing at some seasons of the year, it is proper to observe that from reliable statistics it has been found that the yearly fall of rain at Sitka is but little greater than that at Astoria, Oregon, and that the climate is salubrious, notwithstanding the excessive moisture of the rainy season.

In order that possessory titles to farms, town sites, harbors, and coasts may be conveyed to settlers, it is suggested that a new surveying district be here established at an early day, and that the advantages of the United States land system be extended to the country, the offices of the surveyor general and register and receiver to be at Sitka, this being a central point and where their services would probably be first called into requisition. At this place the surveyor general could most readily learn in what sections of the country the demand for surveys was the greatest, and from thence his deputies could most readily be dispatched.

The first initial point for surveys in Alaska might be established at or near Sitka for the island of Baranof, and perhaps all the adjacent islands, and the southeastern portions of the mainland. Another could be established at some point near Prince William Sound for the country east of the Chigmit Mountains and the Alaska Peninsula. A third might be located at some point on the Yukon River for the country north and west. The base line and meridian intersecting each initial point could then be

extended as far as the configuration of the country would permit, or until the extension of lines from another initial point should be reached. The surveys of islands could either be connected together, and with those of the mainland, by triangulation where the distance is short, or by astronomical observation, or initial points could be established on each island. Either course would serve the purpose of a distinct demarcation of boundaries of claims, grants, and lands sold by the government.

It is probable that the inauguration of surveys in Alaska, and permanent location there of scientific and energetic officers of the surveying service and land officers interested in the settlement of the country, would greatly serve to develop its resources and procure more accurate information relative to its climate, mineral wealth, and capabilities for the support of a large population, than could otherwise be obtained, besides resulting in the most valuable contributions to science.

OUR NATIONAL GROWTH—INFLUENCE, IN THAT RESPECT, OF THE  
PUBLIC LAND SYSTEM.

North America, by its remarkable physical conformation and peculiar position in history, is wonderfully fitted for the development of commercial power. Here all the disintegrating influences of the Old World are happily unknown. The mountain and desert barriers of Asia, which broke infant society into divergent and hostile fragments, find no reproduction on this continent. Diversities of chorography, climate, soil, and productions, here fade into each other by imperceptible degrees, giving scope to homogeneous civilization founded upon universal comity. Imported differences of race subsist but for a single generation, while national boundaries, founded on no well-defined natural frontiers, are destined silently to pass away as the true idea of American society is developed. An "ocean-bound republic," a single flag waving from the Arctic Ocean to the Gulf of Mexico, has long been foreshadowed in the public mind. Without war, without any rupture of the public peace or violation of public faith, by the silent operation of physical and moral forces, all this will be accomplished. The perpetuation of our landed policy and its extension over the continent, as national jurisdiction enlarges, will establish a permanent democratic civilization, secured by diffusion of proprietary rights in the soil such as no democracy ever yet enjoyed. Such are the responsibilities resting upon the present generation of American people and statesmen. We hold in our hands the means of accomplishing all these results.

Our geographical position is right in the main axial line of the globe's grand commercial movement, soon to be developed throughout its entire extent. The comparative cheapness of ocean carriage has hitherto caused an enormous deflection in the track of commerce around the southern extremity of Africa and South America, but this has long been felt as an oppressive restriction, and the most strenuous efforts have been made to evade it. Both of the great continental masses, sometimes called the eastern and western hemispheres, contract in their central portions to narrow isthmus belts, seeming to invite human enterprise to a completion of oceanic inter-communication by excavating ship canals, thus saving thousands of miles of difficult and dangerous navigation.

On the eastern continent this idea is as old as civilization itself, and has at least twice in the past ages, been realized in practice. The



Isthmus of Suez, at a very early period in history, was traversed by a canal said to have been commenced by Pharaoh Necho and finished by the Persian King Darius. Having been permitted to fall into dilapidation, it was subsequently restored by Ptolemy Philadelphus to a condition of effectiveness, in which it continued at least till the age of Augustus, when it gave passage to large Roman fleets engaged in the India trade. Under the sway of Mohammedanism it was again permitted to perish, being almost obliterated by the destructive agencies of nature. Its outlines were, however, observed by the first Napoleon, in his Egyptian campaign, suggesting to his profound intellect its admirable strategic advantages as well as its commercial importance. One of the Napoleonic ideas left by the great conqueror to his successor, to France, and to the world, was the reopening of the Suez Canal, an enterprise that will probably be completed before this report shall have reached the public. This event will mark the removal of the great obstacle to a continuous line of ocean navigation, traversing the eastern portion of the northern hemisphere. From seven thousand to ten thousand miles will henceforth be saved in transportation between Europe and southern Asia. A glance at any well-constructed Mercatorial map will show advantages no less signal to our own trade with India.

The isthmus uniting the two great continents of the western hemisphere has also attracted attention as presenting a similar opportunity for shortening lines of communication between the Atlantic and Pacific, thus saving thousands of miles of navigation, including the stormy passage around Cape Horn. Engineering science has hitherto been unable to find a practicable line of *canal* construction across this isthmus which does not involve a greater expenditure of capital and labor than can be rallied to the enterprise. A railroad across the Isthmus of Panama has been in successful operation for many years, thus offering the next best substitute for the canal project. It might be supposed that a great line of world's traffic, consisting of cheap ocean navigation, connecting with this short link of land transportation, would be able to defy all rivalry of similar lines of combined ocean and land transportation further north. Yet we find a line of railway across nearly the broadest portion of North America, embracing over three thousand miles of expensive railway carriage, entering into a formidable and threatening competition with the southern route, a railway, too, which passes over a belt of country containing hundreds of millions of acres of the public lands destined at no distant future to be covered by actual settlements. The public press reports that the Pacific Mail Steamship Company, since the completion of our Pacific railway line, have reduced the number of their steamers connecting with the Panama railroad, and that a further reduction is expected.

The relative influence of railways in travel and transportation is increasing, in defiance of doctrines that were thought to be well settled by experience. In spite of the comparative cheapness of water carriage by canals, the amount of cheaper raw material seeking railroad transit is annually increasing. For the movement of the lighter and more expensive articles of commerce, such as the teas and silks of China, which represent a vast amount of labor expended upon their gathering and fabrication, the cost of carriage, as heretofore reported, will bear but a small ratio to their market price, and will give to our long line of trans-continental railroad, with its rapidity of transit, an overwhelming advantage.

The tendency of normal civilization is to condense the value of articles of commerce by manufacturing raw material near the place of its



production, thus lessening the friction of transportation. The western farmer finds it profitable to transmute his corn into hog's flesh, and that, in turn, into manufactured pork, before sending it to market. So it will be found an immense saving to society to consume the flour and pork in supporting skilled labor at home, and in sending the condensed product to market in the form of fine cloths and other high-priced commodities. The greater the number of chemical and mechanical changes that can be wrought upon raw material near the place of its production not only lowers the cost of transshipment, but also makes that cost to bear a depressed ratio to the value of the freight. The comparative cheapness of ocean transportation will then be partly neutralized by this condensation of commercial values. The rapidity of transit, as the system of modern commerce becomes more elaborate and settled, is an increasing element of power operating in favor of our trans-continental line, whose last link was forged in the completion of our Union and Central Pacific roads.

The growing power of railways over water carriage is illustrated in the case of Holland and Belgium. At the separation of these countries in 1830, the former possessed a much larger commerce and a greatly superior water communication by sea and canal transit. In 1835 the total exports and imports of Belgium were about \$50,000,000, while those of Holland were about double this aggregate. In 1833, however, the Belgian system of railways was inaugurated under the superintendence of the great English engineer, George Stephenson. The Dutch, meanwhile, relying upon their water communication, made no special effort to engage in railway enterprise till the remarkable strides of Belgian commerce awoke them to effort. The Dutch Rhenish railway, constructed to recover their former superiority, was not fully opened till 1856; but the palm of commercial superiority had passed to the younger rival. The imports and exports of Holland in 1862 were less than \$300,000,000; while those of Belgium approached \$400,000,000. The advance of modern civilization may be gauged from the extension of its railway lines. The same influences which extend the competitive power of railways in the narrower sphere of local traffic are now felt on a grander scale in our great trans-continental line.

Our long railroad, passing through the entire length of the country, will ultimately supersede the short isthmus line in the conveyance of passengers and merchandise across the western hemisphere. The counterbalancing advantage of the northern line, the abbreviation of ocean distance, has not been sufficiently appreciated. This reduction of distance may be seen by comparing the actual length of the fortieth parallel with that of the equator, or of the diagonal deflections that must of necessity be made in descending to a latitude even so high as that of Panama Isthmus. The swelling of the earth at the equator, and the consequent enormous enlargement of distances around it, are apt to be overlooked even by intelligent thinkers on these subjects.

A glance at the Mercatorial map of the world will show a remarkably direct alignment for a continuous route of travel and traffic from the head of navigation on the Yang-tse-Kiang River, in China, passing through San Francisco, New York, and the entire length of the Mediterranean Sea to Port Said, the northern terminus of the Suez Canal. The impracticable continent of Asia here breaks the continuity of this line. The massive Himalayas preclude even railway passage upon any principles now known. The transit of the three southern peninsulas, Arabia, Hindostan, and Farther India, would involve an annoying frequency of transshipment; hence the great line of the world's traffic will

be compelled to drop down to the Indian Ocean, accepting cheaper ocean transport as the compensation for greater distance and slower time.

But that portion of the line traversing our own continent is capable of very great abbreviation. The line of the Union and Central Pacific roads, already finished, it should be remembered, is a compromise line, in which important advantages inure to local interests. The Northern Pacific, crossing our interior mountain chains at much lower altitudes, with a more direct alignment, and passing over an immense zone of the public domain, claims to offer a land transit across the continent at least three hundred miles shorter than other routes, besides an ocean navigation from Seattle, its western terminus, to China and Japan, some five hundred miles shorter than from San Francisco to the same countries. This office is not prepared to verify the exact figures of these estimates, but it satisfactorily appears that they embody an important truth. Other abbreviations of this land route may be effected by other railway enterprises as the necessities of trade and travel may demand. We have, then, partially developed the elements of a main line of traffic and travel girdling the earth near the fortieth parallel. Along this the mass of the trade of the northern hemisphere will ere long be made to pass. The commercial ascendancy of northern Europe is a thing of the past. It was suited to the imperfectly developed commercial and industrial aptitudes of the passing age; but world-wide civilization is now beginning to assume its rounded development. The barbarism of the Western Continent is now completely overshadowed, and the semi-barbarism of the Eastern Continent undermined, by progressive influences and ideas. The Yang-tse-Kiang is already vexed with the paddle of the steamer; foreign commerce is pushing its cargoes up that river eight hundred miles from Shanghai into the very heart of China. That great monarchy, hoary, superannuated, decrepit, must rely for the prolongation of its existence upon once despised "outside barbarians"—another "sick man" in the Old World. A Mohammedan insurrection has for years been disintegrating the four western provinces of China Proper, while the wandering Tartars in the dependencies of the empire are learning the weakness of the power which has for centuries enslaved them. The Semitic governments of Asia are breaking down through the infirmities of age and natural decay, and sinking before the onslaught of occidental commerce and conquest. We see, as the Commissioner has had occasion in another paper to remark, the fulfillment of that ancient prophecy, "God shall enlarge Japheth, and he shall dwell in the tents of Shem."

The social and political status of Asia has within the last century been subjected to influences which promise to result in a complete revolution. The first European adventurers that came in contact with the Chinese were not of a character to inspire very lofty ideas of western culture and civilization, nor to humble the lofty pride nurtured by four thousand years of imperial sway.

The yielding deportment of the English East India Company, submitting to every indignity for the sake of trade, confirmed the Celestials in their contempt of foreigners. This led to hostilities with England and France, whose naval and military operations, in the different wars from 1839 to 1860, demonstrated the superiority of western civilization. The ascendancy of Europeans in China is now an accomplished and irrevocable fact, accepted by public opinion. This popular impression is less the fruit of military success than of the quiet operation of commercial intercourse. The introduction of the improvements in navigation and internal communications by foreigners, and the increased value of



business naturally resulting therefrom, have awakened new ideas and wants which can be met by no agency in the old system of society.

But the other nations of Asia are passing through the same series of organic changes. Semitic conservatism and exclusiveness are yielding to the molding influences of a universal civilization. Diversities of race and religion will soon cease to interpose barriers to the free intercourse of nations, and will soon fade away before the increasing power of commerce, the spread of intelligence, and the unification of faith. In the midst of these social changes, the activity of political movements is no less marked and effective. Europe has settled down upon a policy of systematic conquest in Asia, the operations of which are by no means suspended in the so-called intervals of peace; while the gates of Janus are shut the wiles of diplomacy and the ceaseless movements of trade are undermining the native potentates, and preparing the aggressive forces which, upon the first specious pretext, are to be hurled against them, resulting in the entire or partial conquest of their dominions.

On the north the semi-Asiatic empire of Russia has been for ages pushing its conquests eastward and southward, absorbing great continental areas, and welding the most diverse popular elements into a single political system. Her left flank, as remarked in a previous report, has been pushed across the Amoor, and now rests half-way down the sea of Japan, within eight hundred miles of Peking, while her right has swept across nearly the whole of Turkistan, threatening the Anglo-Indian frontier. The drift of the controlling forces of Russian civilization is eastward to the Pacific. The exiles of Siberia, embracing the ardent, energetic, and irrepressible elements of the population, whose presence in the European provinces was deemed inconsistent with the peace of the Russian system, have, amid the bleak desolation of the northern slope of the continent, where serfdom has never planted its foot, built up a social system, vigorous, compact, and energetic, ready to respond to the call of the free civilization which we are now planting across the Pacific. On the south, England has built up a splendid commercial and military empire, radiating her civilization downward from the seat of authority by means of internal improvements projected on a most comprehensive plan. While missionaries of a hundred Christian churches are engaged in remodeling the social and moral elements of the population, the industrial system of India has been remodeled and reduced to an entire dependence upon that of England. Very little effort is made to conceal the fact, as heretofore suggested, that a grand objective point of British policy is to transform Hindostan into a market for English manufactures, and a field for the production of raw material. An army of 150,000 men, 70,000 of whom are Europeans, are maintained out of the revenues of the Indian empire, which afford also large surplus for the home treasury. Over 5,000 miles of railway have been completed, giving to this imposing military force facilities for concentration upon given points that will triple or quadruple their efficiency. France has reopened a career of conquest and colonization in Farther India, and evidently looks to a large interest in the expected dismemberment of Central Asiatic empire.

During the past year no rupture of the public peace has been chronicled, but the forces of conflict are being silently mustered. In the mean time, however, this "eastern question" has broadened its issues to embrace interests unthought of in its earlier stages. A new empire of democracy has established itself on what was lately the abode of barbarism, the western coast of the North American continent. This republic has a commanding position in the disposal of Asiatic nationalities which



it is amply able to vindicate, by force if necessary, but which it proposes to secure by the peaceful influences of a higher civilization. We have no territorial ambition beyond our own continent to bring us in collision with the reigning powers of Asia; we recognize the full and perfect equality of nations, and the right of each to regulate its foreign policy and its domestic institutions. This character of our foreign policy has been uniformly maintained in our intercourse with the powers of the Old World.

As American resources upon the Pacific slope are developed, our moral and physical influence in the Asiatic problem increases, while the rupture of the peace of the world for purposes of conquest and aggrandizement by the European powers involves wider interests and graver consequences. This significant fact has been already noticed by the governments of Eastern Asia, which are now learning to lean upon the moral support of this republic in the long contest for existence which they have maintained against European powers. China, disenchanted of her illusions with regard to her superiority over other countries, has sought to secure her admission into the family of civilized nations, and thus escape absorption by European conquest, which has been the fate of so many Oriental states. Under American influences she consents that her hoary civilization should be reconstructed, and that those improvements in science and art which have enabled western nations to prevail against her, should be incorporated into her social system. Our aim will be to give her such moral and diplomatic support as will enable her to avoid the entangling complications which European diplomacy is weaving, and enable her to reach a higher social organization and a nobler individual manhood. The reward of our labors, in addition to the glory of justice and fair dealing, will be the opening of a more intimate and lucrative commercial intercourse than ever was awarded to any nation, while the industries of the republic and its domestic trade will receive accelerated development.

The agencies of American landed policy in securing these results have already been referred to, and are presented in detail in papers accompanying this report. We will never be able, perhaps, fully to appreciate our indebtedness in this respect to the illustrious statesmen in our national councils who originally devised this system, and those who at different times have enlarged its scope of beneficent influence. The public domain has reached in its enlargement an area equal to 2,867,185 square miles, or 1,834,998,400 acres. From this landed interest Congress has made princely endowments for educational purposes; common schools; agricultural and mechanic colleges and universities; for military bounties in the war of the Revolution, in the war of 1812 with Great Britain, of 1847 with Mexico, and Indian wars; in furtherance of internal improvements on a large scale, general and special; in aid of the reclamation of swamp and overflowed lands; for the construction of canals; for wagon roads; for seats of government and public buildings; for deaf and dumb asylums; for individual Indian reservations; for the confirmation of millions of acres in satisfaction of foreign titles; for the construction of railways from 1850 to 1867, including the transcontinental lines, this item alone reaching 182,108,581.40 acres.\* Then the government has watched over the advancing settlers, securing them in their homes, first upon lands surveyed, offered and unoffered, then giving legal inception to settlements before surveys, and expanding the principle along railway concessions.

---

\* Exclusive of wagon roads, which, if added, will make a grand aggregate of 185,890,794.67 acres.

The area of the United States, within the limits recognized and defined by the treaty of peace in 1783, embraces 824,248 square miles, or 327,518,720 acres. Of this surface there was claimed by different States, under colonial charters, yet which was ceded by them for the common benefit, a surface, designated as public lands, equal to 354,000 square miles, or 226,560,000 acres, which constituted the nucleus of the national proprietorship.

At the opening of the American Revolution we had within our limits, according to Seybert's Statistics, only two million three hundred and eighty-nine thousand three hundred persons of every description. Now we have a population of forty millions of inhabitants, with nearly two thousand millions of acres as national territory, with a geographical surface of the whole Union equal to nearly four millions of square miles, with the Atlantic and Pacific Oceans as frontiers, the former the highway to European commerce, the latter giving us a dominating position for the control of Asiatic trade, while we have as the boundary, in part, the great northern lakes of the continent, and on the south the Gulf of Mexico. Gibbon, in surveying the extent of the Roman Empire at a period when it had reached the summit of its grandeur, after a career of conquest and civilization for a thousand years, estimated its surface at sixteen hundred thousand square miles, and as embracing a population of one hundred and twenty millions. The United States already occupy an area equal to nearly four million square miles, two and a half times greater than that ancient empire of civilization; and in thirty years, according to existing ratios, will have one hundred and seven millions of inhabitants, high authority having estimated that there will be one hundred and fifteen millions at the close of the present century.

The growth of our resources during the past year has been steady and cheering, as elsewhere shown in this report; the value of the freight transported on our railroads during the year 1868 was estimated at twelve billions of dollars. The aggregate earnings of our people, it is now ascertained, amount to ten billions of dollars, about ten per cent. of which, or one billion, are a surplus added to our capital. Last year the estimates were twenty-five per cent. lower, but a careful study of facts and statistics has convinced the Commissioner that those figures were inadequate to express the reality; adding twenty-five per cent. to the value of our railway traffic previously mentioned, and we will obtain an aggregate approximating our internal trade.\* It is also ascertained that the true gold value of the personal and real estate of this country is not less than thirty billions of dollars. These aggregates are destined to rapid expansion. The depression of general business, the natural reaction from the heavy strain of civil war, is now broken up, and the spirit of enterprise has been reawakened in all departments of industry and commerce. Manufacturing is now prosecuted on the field of original raw production, thus embodying in action the true social principle, and saving that immense loss which has been experienced in the past in supporting an intermediate unproductive class. The great principles on which our government rests are now firmly established and generally acknowledged, assimilating to the theory in the natural world of the planetary system, recognizing the general government as the sun of that system, and the States as political planets revolving around the common center, held in their orbits by primordial laws.

---

\* The statistics on which these estimates are based are treated of in the article on railroads and other papers in this report.

Under genial impulses our industrial and commercial machinery is again in operation, accumulating wealth and giving peace and plenty throughout the land, while our educational and moral influences are no less active in refining and elevating our progress, and in enabling us to realize the nobler ends of civilization.

Respectfully submitted.

JOS. S. WILSON,  
*Commissioner.*

ARGUMENT ON THE WANT OF JURISDICTION AND POWER IN THE UNITED STATES COURTS TO INTERFERE WITH MATTERS PENDING BEFORE THE DEPARTMENT OF THE INTERIOR RECEIVING ITS OFFICIAL ACTION, WITH ACCOMPANYING CORRESPONDENCE.

LAND OFFICE, FORT DODGE, *November 4, 1868.*

SIR: The injunction restraining this office from allowing declaratory statements, and homesteads on the odd-numbered sections along the Des Moines River, has by the court been dismissed, and, in accordance with your instructions in your letter of August 28, 1868, we shall allow homesteads and pre-emptions on that class of lands where the cases come within the instructions contained in said letter.

I am, very respectfully, your obedient servant,

C. B. RICHARDS, *Register.*

Hon. JOS. S. WILSON,  
*Commissioner General Land Office.*

DEPARTMENT OF THE INTERIOR,  
*General Land Office, August 22, 1868.*

SIR: On the 9th of May last the department, in the exercise of its appellate power, decided in favor of the claim of Herbert Battin to enter as a pre-emptor the southwest quarter of section 3, township 83, range 27, in the Des Moines land district, in the State of Iowa, and on the 19th of the same month rendered similar decisions in favor of the claims of Mayfield and Mahaffy to other tracts of land in said district.

These lands fall within the lines formed by the crossing of the Des Moines River Improvement grant, ten miles wide, and the Dubuque and Pacific railroad grant, twelve miles in width, and are claimed by Edwin C. Litchfield, as trustee of the Des Moines River Improvement Fund, under a conveyance said to have been made by the State of Iowa in May, 1858, in pursuance of the grant to that State by act of Congress approved August 8, 1846.

These decisions were accordingly communicated by the Commissioner of the General Land Office on the 20th and 25th of May last, to the register and receiver at Des Moines, Iowa, with instructions to permit said pre-emption settlers to enter the tracts respectively claimed by them as directed by the head of this department.

On the 4th of June the said register and receiver were notified of the intention to apply for an injunction, and on the following day, to wit, June 5, 1868, were served with a writ of injunction issued from the United States district court for the district of Iowa, (authorized by law to exercise the jurisdiction and powers of a circuit court of the United States in said district,) at the suit of Edwin C. Litchfield, restraining and prohibiting them from carrying out the directions of the honorable Secretary, as embodied in the instructions from this office to permit said entries to be made.

This proceeding on the part of the district court of Iowa appears to me to be wholly unauthorized, an unwarranted interference with the officers of the land department in the exercise of their official duties, an encroachment by the federal judiciary upon the executive powers of the government that ought not to be permitted to ripen into a precedent; and as the great security against a gradual concentration of the several powers of the government in the same department, according to an eminent authority, consists in giving to those who administer each department the necessary constitutional means and personal motives to resist the encroachment of the others, I propose, if it meet the approval of the Secretary, to instruct the register and receiver at Des Moines to proceed in the discharge of their duties in the same manner as if no injunction had been served upon them, at the same time, as a matter of respect to a co-ordinate branch of the government, filing their answer to the writ denying the jurisdiction and power of the court to control their official action; a position which it has been the purpose to establish in the accompanying paper presenting the Commissioner's views in reference to executive powers and rights, and the want of legal ability on the part of the



judiciary to take cognizance of any matter pending before the Department of the Interior and subject by law to its administrative control.

As it appears the register and receiver at Fort Dodge, Iowa, have been served with a similar writ restraining them from carrying out instructions of like character in relation to lands subject to the same ruling, I recommend that the same course be pursued in reference to these officers.

Very respectfully, your obedient servant,

JOS. S. WILSON, *Commissioner*.

Hon. O. H. BROWNING,  
*Secretary of the Interior, Washington, D. C.*

---

DEPARTMENT OF THE INTERIOR,  
*General Land Office, August 28, 1868.*

GENTLEMEN: On the 9th of May last the honorable Secretary of the Interior decided in favor of the right of Herbet Battin to enter as a pre-emptor the southwest quarter of section 3, township 83, range 27, in the Des Moines land district, Iowa, and you were accordingly instructed to be governed by that decision in all cases coming within the ruling therein made.

For carrying out these instructions you were, on the 5th of June last, served with a writ of injunction issued from the United States circuit court for the district of Iowa, enjoining you from proceeding under said instructions. By direction of the acting Secretary, this day received, you are now instructed to proceed in the duties required by the decision in the Battin case, regardless of the injunction, and receive and file declaratory statements from actual settlers in all cases strictly falling within the ruling made in the Battin case, a copy of which decision has been transmitted to you, simply filing in the circuit court an answer denying its power to control your official action and a motion to dissolve the injunction for want of such power, at the same time filing with the answer the argument herewith transmitted, presenting the views of the department in reference to the action of the court. Having already retained counsel, you will advise him of the position taken by the department, and that the only defense contemplated is that indicated above.

You will advise this office of all action taken under these instructions, and all further proceedings in court.

Very respectfully, your obedient servant,

JOS. S. WILSON, *Commissioner*.

REGISTER AND RECEIVER,  
*United States Land Office, Des Moines, Iowa.*

---

#### ARGUMENT.

In examining this question attention is first called to the statutory provisions defining the powers of this office and the department.

1. The act of July 4, 1836, to reorganize the General Land Office, (vol. 5, p. 107,) makes the executive duties appertaining to the surveying and sale of the public lands of the United States, or duties in anywise respecting such public lands, subject to the supervision and control of the Commissioner of the General Land Office, under the direction of the President of the United States; the act of March 3, 1849, (vol. 9, p. 395,) specially conferring upon the Secretary of the Interior the right of supervision and appeal in respect to such action in the General Land Office.

The duty of supervising the sale of the public lands, of receiving or rejecting applications for settlement under the pre-emption and homestead laws, involves the necessity of determining what lands are subject to such sale and settlement, and what are reserved.

The act of August 8, 1846, granting lands to the State of Iowa to aid in the improvement of the Des Moines River, (vol. 9, p. 77,) by necessary implication imposed upon this office the duty of reserving from settlement and sale the lands granted, a duty which could only be properly performed after having first determined the extent of the grant; or, in other words, given a construction to the granting act.

Similar action became necessary on the passage of the act of May 15, 1856, granting other lands to the State to aid in the construction of certain lines of railroad from the Mississippi to the Missouri River, (vol. 11, p. 9.)

The joint resolution of March 2, 1861, relinquishing to the State of Iowa tracts of land above the Raccoon Fork, held by bona fide purchasers under the State, (vol. 12, p. 251,) and the act of July 12, 1862, confirming a land claim in the State of Iowa, and for other purposes, (vol. 12, p. 543,) rendered it incumbent upon the General Land Office to

ascertain the quantity thus held by bona fide purchasers, that this department might set apart the quantity of land to be certified to the State in lieu of such as may have been otherwise disposed of according to the requirements of the act, that the lands inuring to the State might be segregated from the public domain, with a view of again opening to settlement and sale tracts not selected by the State under the act of July 12, 1862. In the performance of the duties thus rendered obligatory on the department, the necessity of construing the statutes involved became indispensable, and without such construction administrative action was entirely impracticable. It was a duty directly submitted to the land officers in their official capacity, from the discharge of which there was no escape.

To aid the department in coming to correct decisions in matters of this nature, the office of Attorney General was created, the incumbent of which is to be a person learned in the law, and is to give his advice and opinion upon questions of law when requested by any of the Secretaries touching any matters that may concern their departments. No appeal or writ of error is allowed from the decision of the Secretary to the courts; no mode provided by law to obtain the opinion of the judges or of the courts on the construction of a statute preliminary to action in the department; and hence all the questions presented in carrying into effect the said several acts of Congress were decided by the only tribunal having jurisdiction in the matter or authorized by law to make such decisions; and as the powers and jurisdiction thus exercised were judicial in their nature, it follows that if the department acted within the law, and its decisions cannot be impeached on the ground of fraud or palpable unfairness, they must be considered final and conclusive until reversed by the department; a proposition which holds true in relation to every tribunal acting judicially within the sphere of its jurisdiction where no appellate tribunal is created. *Wilcox vs. Jackson*, 13 Peters, 511; *Lytle vs. The State of Arkansas*, 9 Howard, 333.

What, then, were the duties of the executive officers in relation to the several acts granting lands to the State of Iowa to aid in the improvement of the navigation of the Des Moines River, and in the construction of the several lines of railroad crossing the State? What acts were within the powers conferred upon them by law? Evidently the first duty, as already stated, was to determine the extent of the grants made, to ascertain what lands passed to the State and what remained unaffected by the granting acts, that the former might be reserved from settlement and sale, and finally certified to the State; and the latter, being segregated from the others, again declared open to settlement and sale.

That these duties were clearly incumbent upon the Land Department would seem unquestionable either from a consideration of the several statutes creating and defining its jurisdiction, or its uniform practice in similar cases for more than half a century. It is the duty of the land officers to administer the pre-emption and homestead laws, to supervise, under the direction of the President, the public sale of lands, and to indicate what lands are subject to private entry; to reserve from settlement and sale lands needed for public purposes, or granted to aid internal improvements, and all powers necessary to accomplish these results are impliedly conferred. To hold otherwise would be to claim that in the case under consideration Congress had granted large bodies of land to the State of Iowa lying in alternate sections within certain limits, with the right to select outside of such limits other lands in lieu of such as had been otherwise disposed of, without providing the means by which the quantity thus disposed of could be ascertained, or the quantity and the particular tracts selected might be certified to the State, as evidence of its title, and as a protection to its vendees.

"No authority," says the Supreme Court, in the case of *Dubuque and Pacific Railroad Co. vs. Litchfield*, 23 Howard, 89, "was conferred on the executive officers administering the public lands to do more than make *partition* between the tenants in common, Iowa and the United States, in the manner prescribed in the act of Congress." But the very act of making *partition* was a construction of the statute making the grant; and although it is admitted that *partition* must be made "in the manner prescribed in the act of Congress," as that was a question in reference to which different tribunals might come to different conclusions, it is still important to ascertain by whom that essential point was to be determined. As the duty of making *partition* was obligatory upon the Land Department, and could not be properly performed without first coming to a decision as to the prescribed manner in which it was to be done, there would seem to be but little room for cavil as to the tribunal required by law to decide that question; and unless the decision when made is of binding effect, concluding all other departments until set aside or reversed by the only department competent to act in the premises, the legislation conferring these powers upon the department, and the laborious and elaborate duties growing out of them, are, of all human efforts, the most futile and unimportant.

If it be conceded that under the grant of judicial powers in the Constitution, Congress might have provided a mode of obtaining the opinion of the Supreme or circuit court upon questions of law arising in the departments to aid the executive officers in the discharge of their duties, it is nevertheless true that Congress has not done so, but, on the contrary, has created the office of Attorney General, expressly enjoining upon the



incumbent the duty of advising the departments on questions of law when requested by the heads of the same. No aid was asked of the judiciary to enable the executive officers to determine any question presenting itself for decision in carrying the laws into effect; the statute providing no right of appeal to the courts from the highest appellate authority in the department, nor any other mode of obtaining a judgment in the judicial tribunals as advisory to the officers charged with the duty of administering the laws, an omission which it is impossible to regard as the result of oversight or inadvertence. It must, therefore, be accepted as disclosing the policy of the law in this respect, and that the interference of the judiciary with the duties of the executive departments was purposely excluded. The Secretary of the Interior, in pursuance of the duties enjoined upon him by law, decided that the lands hereinbefore described constitute a part of the public domain, and are now subject to settlement under the pre-emption and homestead laws, the State of Iowa having obtained the full quantity of land coming to it under said several grants, as admitted by its agent duly authorized to adjust the claims of said State arising under said acts of Congress.

In attempting to carry into effect this decision by the head of this department, the register and receiver are restrained by an injunction issued from the United States district court for the district of Iowa, thus assuming to reverse and set aside the decision of the Secretary of the Interior, and to accomplish by an indirection that which the law confers no power to do directly. Had the statutes authorized an appeal or writ of error to the circuit court from the decision of the head of the department, an injunction might become a necessary writ for the exercise of the jurisdiction of the court, and supposing such a statute to have the proper constitutional sanction, an officer attempting to carry into effect instructions from this department might then in proper cases be restrained by injunction. But no such statute exists; and the question is, whether the court can, in its absence, assume the exercise of a power leading substantially to the same result, and if the proceeding is sustained, practically overruling the Secretary of the Interior quite as effectually as if the Constitution and the statutes had conferred the power in the most plenary manner.

That such action by the court is contrary to the policy and intention of the law seems obvious on very little reflection. As the authority is not to be found in any act of Congress, it is assuming too much to suppose that it will be at all times acquiesced in by the executive department, and if not readily submitted to, how is the court to enforce its decrees? If the present register and receiver should be imprisoned on account of refusing obedience to the writ, others might be appointed in their places, and the action of the court in restraining the local officers, at all events, would decide nothing as to the title of the petitioner to the land in controversy. Will the court proceed to investigate the claim, and order the Commissioner of the General Land Office to execute a patent according to the decree rendered? The legislation of Congress makes the Commissioner subject to the direction of the President of the United States and to the supervision of the Secretary of the Interior. Will the judiciary undertake, in effect, to nullify the functions of these officers, assume the investigation of matters pending in this department, and order patents to issue according to its decrees? And unless its authority reaches to this extent what practical good is accomplished by issuing an injunction or assuming jurisdiction at all?

Certainly if the law read contemplates the exercise of such an authority by the judicial department, it would have prescribed the mode of procedure in a case of so much importance, and provided the means of doing directly what is now attempted to be effected indirectly. It would have provided safeguards against the abuse of such a transcendent power, for if its existence be admitted, it subordinates the whole executive department of the government and concentrates it wholly in the judicial. If the decision of the Secretary of the Interior may be overruled and the subordinate officers of the department restrained from carrying out his instructions, similar action may be taken in reference to the rulings of every other Secretary, and the business of every department may be arrested by the restraining influence of an injunction. Every unsuccessful applicant in the departments, in default of the remedy of a writ of error or an appeal to the courts, will avail himself of the equally effective one by injunction, and, on the plea of irreparable injury to his rights being consummated in the department, will arrest proceedings in the same until the court can hear and decide the questions involved; and the practice once fairly inaugurated, it will be but a short time until every subordinate executive officer in the government is restrained by injunction from the performance of his duties. At least two hundred thousand separate and distinct matters are annually disposed of in these departments, after passing through a rigid examination in different divisions and bureaus. Many of them involve large sums of money, are contested with great energy and skill by the adverse claimants, aided by able counsel, receiving patient and careful consideration by the heads of the departments with the assistance of the Attorney General. Let it be generally understood that the unsuccessful party may take a virtual appeal to the United States courts in the form of a petition for an injunction, and the number of such cases entered upon the dockets of these tribunals every year will probably exceed five thousand, not a few of



which will be found the most complicated and perplexing ever tried in a court of justice, requiring in their investigation the examination of piles of records and papers from the departments embracing transactions extending through a series of years requiring for their explanation frequently scores of different employes familiar with their contents.

As we have assumed that only the most important cases, those involving large sums of money, would come before the courts, it is fair to infer that all or nearly all would be carried to the Supreme Court; and when it is remembered that less than one twentieth part of that number of cases are annually reported from that tribunal, some idea may be formed of the practical value of the remedy thus furnished; and when the injury and embarrassment to the public business arising from the delay incident to proceedings in court, to the inconvenience of attending to such trials by the Secretaries and others employed in the departments, the immense labor of preparing exemplifications of records and papers to be used in these trials, are considered, the wisdom of the legislative policy of withholding from the judiciary all power of interfering with the business of executive departments will be more apparent than ever. See *Opinions of Attorneys General*, vol. 1, p. 681; vol. 3, p. 667; and Mr. Justice Catron's decisions in *Decatur vs. Paulding*, 14 Peters, 520.

The evils that may be justly apprehended from tacitly submitting to these assumptions of the circuit court are not exaggerated in the foregoing remarks. On the contrary, it is believed they might with the utmost propriety have received a much deeper coloring. There is not a land district where questions of at least equal importance, and involving pecuniarily larger sums of money than the one under consideration, are not constantly arising, and no reason is perceived why similar proceedings may not be instituted in each case if those instituted in Iowa are allowed to prevail. Indeed, it is not too much to say that the interference would speedily assume such a form as to render it practically impossible for this office to administer the laws pertaining to the public domain; and the embarrassments experienced here, and in this department, would doubtless be much exceeded in some of the others.

It is readily admitted that the exercise of the jurisdiction now claimed would probably be accompanied by so much wisdom and forethought by the eminent jurists at present occupying the Supreme bench, that the evil consequences apprehended might not become fully developed for many years, and if the distinguished judges now administering the functions of that tribunal were favored with a perpetual lease of life, it may be quite true that the precautions recommended might be safely dispensed with. But no one is authorized to say that the power acquired by repeated precedents carelessly submitted to until they have ripened into an irresistible jurisdiction may not be oppressively used by successive judges, and the lessons of history are sufficiently numerous and emphatic to admonish us that the only safe course is to adhere closely to the uniform practice of the department, and to resist by all proper means every appearance of encroachment upon its hitherto conceded rights and powers.

2. The want of jurisdiction in the district court of Iowa to control the officers of this department in the manner now attempted might be placed upon a still broader basis, and maintained upon the ground of being repugnant to the Constitution. The grant of judicial power made in the third article extends to all cases in law and equity arising under the Constitution and laws of the United States, &c., \* \* \* to controversies between citizens of different States, &c.

To come within the description of "a case in law or equity," according to the authority of Chief Justice Marshall, "a question must assume a legal form for forensic litigation and judicial decision. There must be parties to come into court who can be reached by its process and bound by its power; whose rights admit of ultimate decision by a tribunal to which they are bound to submit." 5 Wheaton's App., page 17. In this case there are no parties before the district court between whom there can be an ultimate decision of the questions involved. The respondents, being merely agents of the government, administering its enactments under the direction of the Interior Department, cannot be decreed to convey title to the complainant, nor can they be declared trustees holding the legal title for the use of complainant; a restraint upon their official action determines nothing in reference to the title; it simply interrupts the business of the Interior Department, leaving the questions in controversy as far from an ultimate decision as ever, for a patent can only issue under the direction of the President and in the name of the United States; and it will not be claimed that the district court can control the action of the Executive, or of the officers of the Land Department not served with its process.

A case in law or equity, it may be further alleged, contemplates an injury or wrong to be redressed. The act of an officer of the government, in the performance of duties enjoined by law, is the act of the government itself, and however mistaken or erroneous it may be, is not in legal contemplation a wrong or an injury to be redressed in its own courts. When an error is committed by the executive department, or by any officer in his official capacity, the remedy is not by an appeal to the judicial tribunals, except where such relief is expressly conferred by statute; but by a petition to the department

committing the error, pointing out the matter complained of, and seeking its correction, and in default of the same being granted, by petition to Congress. It may be replied that an executive officer acting contrary to law is not protected by his official character, and this as an abstract proposition may be admitted; but the question is, where the statute has charged an officer with the duty of determining what the law is in a given case, without an appeal to the judicial tribunals, how are they to sit in judgment upon his acts? How can the judicial department take jurisdiction of the question while still pending and undetermined in the executive department? Judges of courts, like executive officers, are fallible and may decide erroneously, as the volumes of overruled cases abundantly attest; and unless the law has authorized them to determine the meaning of a statute, how is it made to appear in a case of conflicting decision that the judicial department is right and the executive department wrong? Such an assumption implies that the Constitution has invested the judiciary with the delicate and responsible duty of determining all doubtful *questions* arising under the Constitution and laws; but such is not the case. Until a question has assumed a form for judicial action between parties who can be reached by the process of the court and are bound by its powers, and whose rights admit of ultimate decision by a tribunal to which they are bound to submit, an opinion of the judges in point of law amounts to nothing, and there is no reason to assume that such an opinion interprets more correctly the meaning of a statute than the decision of the executive or ministerial officers.

The true and only remedy in such a case is to bring the matter to the attention of the department committing the error, and on failure of obtaining justice to petition Congress. At all events, whatever the constitutional grant of judicial power may be, the court can only exercise so much of the grant as is conferred upon it by statute; and the 11th section of the judiciary act of September 24, 1789, invests it with power to take original cognizance concurrent with the courts of the several States of all suits of a civil nature, at common law or in equity, where the matter in dispute exceeds the sum or value of \$500, &c., and the suit is between a citizen of the State where the suit is brought and a citizen of another State. The word *suit* in the statute is construed as meaning substantially the same thing as the word *case* above referred to, 2 Peters, 449; 3 Story Com. Const., §§ 1719, 1720; and the remarks already made for the purpose of showing that the proceeding in the district court is wanting in some of the essential elements of a "case in equity," are referred to on the point that it falls equally short in embodying the requisites of a "suit in equity."

3. Again, the jurisdiction conferred on the circuit courts by the 11th section of the judiciary act is such only as the courts of the several States may also take cognizance of concurrently with the circuit courts of the United States, and, consequently, if the district court for the district of Iowa can restrain the register and receiver of the United States Land Office in the performance of the duties enjoined upon them by instructions from this department, it follows that they are equally liable to be restrained by an injunction issued from the State court of Iowa, and the case is presented of United States officers in the act of carrying into effect the instructions of one of the executive departments of the government being enjoined from proceeding under such instructions by a State tribunal, and on failing to obey the mandate of the court of being arraigned and imprisoned for contempt of its authority.

If this can be done in the present case, there is not a land office in the United States where the same course may not be pursued in probably one-half of the cases coming before the local officers, and the result of such a state of affairs may easily be predicted: the business of the land office will be in a great measure suspended by process issued from State tribunals. Nor is there any escape from this position; the 11th section of the judiciary act furnishes to litigants of different States an impartial forum in which to prosecute their rights, but it creates no additional relief, no new remedy that may not be asserted in the State courts, the jurisdiction conferred on the circuit court arising entirely from the character of the parties and not from the nature of the controversy, and being only such as may be exercised originally by State tribunals, subject to be re-examined and reversed or affirmed by the Supreme Court of the United States on writ of error, under the 25th section of the act of September 24, 1789. That the attempt has not yet been made to interfere with the land officers by injunctions from State courts is nothing to the point. It has not hitherto been attempted by the United States courts, and if the present efforts of these tribunals to acquire such jurisdiction by the tacit admission of the other departments should prove successful, the way will be open for like proceedings by State tribunals, for the establishment of the right of the one is the concession of the right of the other.

In the case of *McClung vs. Silliman*, 6 Wheaton, 598, where a mandamus was moved for in the circuit court of the United States for the district of Ohio, and on its refusal in that court subsequently prayed for in the State court, against the register of the United States land office in Ohio, the Supreme Court of the United States, before which the case finally came on error to both tribunals, held the following language: "It is not easy to conceive on what legal ground a State tribunal can, in any instance, exercise the power of issuing a mandamus to the register of a land office. The United



States have not thought proper to delegate that power to their own courts," \* \* \* "and no one will seriously contend, it is presumed, that it is among the reserved powers of the States, because not communicated by law to the courts of the United States. \* \* \* The question in this case is as to the power of the State courts over an officer of the general government employed in disposing of its land under the laws passed for that purpose. And here it is obvious that he is to be regarded either as an officer of that government or as its private agent. In the one capacity or the other his conduct can only be controlled by the power that created him, since whatever doubts have from time to time been suggested as to the supremacy of the United States in its legislative, judicial, or executive powers, no one has ever contested its supreme right to dispose of its own property in its own way. And when we find it withholding from its own courts the exercise of this controlling power over its ministerial officers employed in the appropriation of its own lands, the inference clearly is, that all violations of private right resulting from the acts of such officers should be the subject of actions for damages, or to recover the specific property, (according to circumstances,) in courts of competent jurisdiction." Here is an unequivocal denial of authority on the part of the State or national courts to control the officers of the Land Department employed in disposing of the public domain. It is true that the question before the court related to the power of issuing a mandamus, but the reasoning of Mr. Justice Johnson is broad enough to cover every species of control; and although it was claimed in this case, as in *Marbury vs. Madison*, 1 Cranch, 137, that the power of issuing a mandamus to a ministerial officer is within the scope of the judicial powers granted in the Constitution, yet it was distinctly asserted in both these cases, as also in *McIntire vs. Wood*, 7 Cranch, 504, that the power had not been delegated to the courts by the legislative department, and that without such delegation it could not be exercised. Now, if the policy of the law-making power has withheld from the United States judicial tribunals in the States authority to issue even a writ of mandamus, commanding the performance of merely ministerial duties, can it be supposed that the power to restrain such officers by injunction from the performance of ministerial acts pertaining to a subject-matter specially placed under their control has been granted? It will be no answer to say that the decision of the department that the lands in question constitute part of the public domain, and may be entered under the pre-emption or homestead laws by actual settlers, having the necessary qualifications, is contrary to law; for even if this were the case, until it is made to appear that the court is legally competent to revise the decision of the Secretary in reference to matters pending in his department in an unfinished state, the opinion of the court is *coram non judge*, and decides nothing. The remedy for such a violation of private right, according to the case of *McClung vs. Silliman*, would be an action for damages, or to recover the specific property; either an action on the case, or an action of ejectment to recover the title and possession of the land. As the United States claims to own it, and to have the power to control the same, a suit to recover the specific property would have to be brought against the United States; and as this could not be done, it follows that a suit for the specific property cannot be brought until the title has passed out of the United States by the delivery of a patent; and if the Des Moines River Navigation Company are entitled to the premises by virtue of grants made in the several acts of Congress referred to above, such remedy, according to the usual practice of the courts in canceling patents found by these tribunals to have been issued without legal authority, is amply sufficient, as no title can be made to innocent third parties without notice. Hence in this case a plain, adequate, and complete remedy may be had at law; and a resort to the equity side of the court is improper, according to the sixteenth section of the judiciary act and the general rulings of the courts.

4. Finally, the circuit court has no power to issue an injunction except in cases where it may be necessary for the exercise of its jurisdiction and agreeably to the principles and usages of law. See fourteenth section judiciary act, Statutes, vol. i, p. 82.

The writ can only issue from a circuit court in a case necessary for the exercise of a jurisdiction already existing, and not in a case where the jurisdiction is to be courted or acquired by means of the writ sued out. See *McClung vs. Silliman*, where this view is taken of the power of the court to issue the writ of mandamus, provided for in the same section and clause of the judiciary act, furnishing the authority to issue the writ of injunction. Without the aid of the writ of injunction it is difficult to perceive what other jurisdictional act the court can exercise in reference to the local land officers. It cannot enter a decree against them as trustees of the legal title for the use of complainant. It cannot decree them to execute title to him, for they are in no way connected with the title, being simply agents or officers of the government through whose hands the muniments of title may pass, and through whom the transactions preliminary to the passing of the title may be conducted.

Nor is the writ issued agreeably to the principles and usages of law. No usage of law exists authorizing a writ of injunction to an officer in the exercise of duties enjoined upon him by law from an apprehension that the officer may improperly perform such duties. Such a proceeding is contrary to both the principles and usages of



law, and the court is without legal warrant in the attempt to exercise such jurisdiction.

In conclusion, it may be observed that the difficulty which has led to the commencement of these irregular proceedings in the district court is directly traceable to the interference of the courts in this case at a former period.

In 1858 or 1859 a suit was instituted in the same court by said Litchfield against the Dubuque and Pacific Railroad Company, to try the title to one of the tracts of lands lying within the lines made by the crossing of the railroad and river grants, and on its being decided by the district court in favor of the Des Moines River Improvement Company it was brought to the United States Supreme Court by writ of error, and came to a hearing at the December term, 1859, 23 Howard, 66. Mr. Justice Catron, in delivering the opinion of the court, said: "On mature consideration we are of opinion that the title of neither party has been affected by the proceedings in the Land Office, or by the opinions of the officers of the executive department, but that the claims of the parties under the two acts of Congress must be determined by the construction to be given to those acts. This we are required to do in deciding this cause." Again, the court say, "And although the case agreed was made up in a friendly spirit, nevertheless the object was to try the title, and this was done at the instance of some of the executive officers. If the judgment of the district court were affirmed, the defendant below would lose the land; and it being reversed, the plaintiff below loses it. We have, therefore, felt bound to hear and decide the cause on its merits, and finding that the plaintiff below has no title, we direct that the judgment of the district court be reversed and the cause remanded, and that the court is ordered to enter judgment for the defendant below."

The Supreme Court decided that the Des Moines River grant extended only to the Raccoon Fork, and in this they simply followed the opinion of the Attorney General of the United States, communicated to the Secretary of the Interior in November, 1858, agreeably to which the Secretary was then proceeding to execute the act of August 8, 1846. But the Supreme Court decided more than this. As the suit was between the river company and the railroad company, the court decided that the railroad company took the land in controversy under the act of May 15, 1856, and ordered judgment to be entered in favor of said railroad company.

As a matter of respect and courtesy toward that tribunal, this department accepted the decision as a rule of action for itself, and proceeded to certify and approve to the State of Iowa, to aid in the construction of railroads, the odd-numbered sections within the lines made at the crossings of said grants, and after the passage of the act of July 12, 1862, certified to the State other lands for the river company in lieu of those certified as above, to aid in constructing railroads. After the lands affected by these grants had been thus disposed of by the Land Department in pursuance of the above decision of the Supreme Court, another case, involving the title of the railroad companies to the odd-numbered sections at the crossing of said grants, came before the Supreme Court, when that tribunal, instead of adhering to its former decision, held that the said lands were reserved from the operation of the act of May 15, 1856, by the last proviso of the third section, and did not pass to the railroad companies. Hence these lands are now claimed by the river company under the confirmatory act of July 12, 1862, and the present controversy is therefore the direct result of this department having followed the ruling of the Supreme Court as reported in 23 Howard, from which it afterward receded in the case of *Walcott vs. The Des Moines Company*, reported in 5 Wallace, 681.

To avoid similar perplexity and confusion in the future, it is believed that the rule heretofore observed, of each department determining the nature and extent of its own duties according to its own judgment and upon its own responsibilities, should be inflexibly adhered to. All of which is respectfully submitted.

JOS. S. WILSON,  
*Commissioner.*

WASHINGTON, D. C., *August 22, 1868.*

---

SUGGESTION OF THE ESTABLISHMENT IN THE GENERAL LAND OFFICE OF A CABINET  
EMBRACING SPECIMENS OF SANDS, CLAYS, ETC.

WASHINGTON, D. C., *August 25, 1869.*

SIR: I feel much interest in your mineral collection from the various States and Territories of the United States, and frequently visit it as a source of instruction. I have been engaged extensively for many years, in Europe and in this country, in manufacturing branches, chemical and mechanical. In the course of my studies I have frequently felt the want of a museum of reference, such as yours, as an assistant in chemical research.

Manufacturing chemists require a varied assortment of sands for glass-making and

for soluble silicates, for cement compounds, artificial stone, and for general building and plastering purposes.

There is also a great demand for every description of loam sand used in the founderies for molding, in the production of iron, brass, and bronze castings.

It is probable that in the United States of America every variety of sand for foundry purposes may be had, yet, strange to say, the molding sand used for the production of bronze doors of the Capitol, made at Chicopee, Massachusetts, had to be procured from Paris, and without which the doors could not have been made.

It is also very desirable to have specimens of every kind of clay, embracing the ochres. The clays vary as much in their properties as sand, each having a separate use in the arts and manufactures. Picture-frame gilders, for example, use a clay very rich in alumina, but which must be entirely free from grit. A clay suitable for burnish gold size, when combined with black lead and oil in certain proportions and ground to a pulp, sells for sixty cents per pound. Clay for this purpose is imported from England. The blue clay of the "London Basin" is much used for this purpose.

Clays of various qualities are employed in the manufacture of pottery ware, crucibles, &c. It also enters largely into the combinations of paint, and for cleansing cloth, and as a deodorizing agent. These are but a few of the uses of these two substances, sand and clay.

I believe, Mr. Commissioner, that the establishment in your department of a large museum, embracing specimens of every kind and quality of sand, earth, minerals, and vegetable substances, especially the gum, gum resins, and resin proper, together with the various coloring substances used in varnish-making, would greatly assist in the establishment of home manufactures, and might directly aid in the founding of chemical and other manufactories in this district. I doubt not Congress would give aid to any well-developed project promising such invaluable assistance to the industries of this country.

I am, sir, very respectfully, yours,

THOMAS TAYLOR

Hon. JOS. S. WILSON,  
*Commissioner of the General Land Office.*

#### LIST OF PAPERS ACCOMPANYING COMMISSIONER'S ANNUAL REPORT.

No. 1. Tabular statement showing the number of acres of public lands surveyed in the States and Territories up to June 30, 1868, during the last fiscal year, and the total of the public lands surveyed up to June 30, 1869; also the total area of the public domain remaining unsurveyed within the same.

No. 2. Statement of public lands sold; of cash and bounty-land scrip received therefor; number of acres entered under the homestead law of May 20, 1862; of commissions received under the sixth section of said act; also land located with scrip under the agricultural college and mechanic act of July 2, 1862, and commissions received by registers and receivers on the value thereof; and statement of incidental expenses thereon in the first half of the fiscal year commencing July 1, 1868, and ending June 30, 1869.

No. 3. Statement showing like particulars for the second half of the fiscal year ending June 30, 1869.

No. 4. Summary for the fiscal year ending June 30, 1869; showing the number of acres disposed of for cash, with bounty-land scrip, by entry under the homestead laws of May 20, 1862, and March 21, 1864, with aggregate of \$10 homestead payments, homestead commissions; also locations with agricultural college and mechanic scrip, under act of July 2, 1862.

No. 5. Statement showing the quantity of swamp lands selected for the several States under acts of Congress approved March 2, 1849, September 28, 1850, and March 12, 1860, up to and ending September 30, 1869.

No. 6. Statement exhibiting the quantity of swamp land approved to

the several States under acts of Congress approved March 2, 1849, September 28, 1850, and March 12, 1860, up to and ending September 30, 1869.

No. 7. Statement exhibiting the quantity of swamp land patented to the several States under acts of Congress approved September 28, 1850, and March 12, 1860; and also the quantity certified to the State of Louisiana under act approved March 2, 1849.

No. 8. Statement showing the State selections under the "internal improvement" grant of September 4, 1841, on the 30th of June, 1869.

No. 9. Exhibit of bounty-land business under acts of 1847, 1850, 1852, and 1855, showing the issue and locations from the commencement of operations under said acts to June 30, 1869.

No. 10. Statement showing the selections made by certain States of lands within their own limits, under agricultural and mechanic act of July 2, 1862, and its supplemental acts of April 14, 1864, and July 23, 1866; also the locations made with scrip under said acts.

No. 11. Statement exhibiting land concessions by acts of Congress to States and corporations for railroad and military wagon-road purposes, from the year 1850 to June 30, 1869.

No. 12. Statement exhibiting land concessions by acts of Congress to States for canal purposes from the year 1827 to June 30, 1869.

No. 13. Estimate of appropriations required for the office of the Commissioner of the General Land Office for the fiscal year ending June 30, 1871.

No. 14. Estimates of appropriations required to meet expenses of collecting the revenue from sales of public lands in the several States and Territories for the fiscal year ending June 30, 1871.

No. 15. Estimates of appropriations for the surveying department for the fiscal year ending June 30, 1871.

No. 16. Estimates of appropriations required for surveying the public lands for the fiscal year ending June 30, 1871.

No. 17. Estimates of appropriations required for the surveying department to supply deficiency for the year ending June 30, 1870.

No. 18. Reports of surveyors general, A to O, inclusive.

No. 19. Statement of confirmed Indian pueblo grants and private land claims in New Mexico.

No. 20. General tabular statement, exhibiting the following: No. 1. States and Territories containing public land; No. 2. Areas of States and Territories containing public lands, in square miles and acres; No. 3. Quantity sold; No. 4. Entered under the homestead laws; No. 5. Granted for military services; No. 6. Granted for agricultural colleges; No. 7. Approved under grants in aid of railroads; No. 8. Approved swamp selections; No. 9. Quantity granted for internal improvements; No. 10. Donations and grants for schools and universities; No. 11. Locations with Indian scrip; No. 12. Locations with float scrip, under act of March 17, 1862; No. 13. Estimated quantity granted to wagon roads; No. 14. Quantity granted to ship canals; No. 15. Salines; No. 16. Seats of government and public buildings; No. 17. Granted to individuals and companies; No. 18. Granted for deaf and dumb asylums; No. 19. Reserved for benefit of Indians; No. 20. Reserved for companies, individuals, and corporations; No. 21. Confirmed private land claims; No. 22. Quantity remaining unsold and unappropriated June 30, 1869.

No. 21. Historical and statistical table of the United States of North America.

No. 22. List of twenty-nine maps of all the public land States and Territories, to wit: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minne-



sota, Iowa, Dakota, Missouri, Arkansas, Louisiana, Mississippi, Alabama, Florida, Nebraska, Kansas, Indian Territory, Colorado, New Mexico, Montana, Wyoming, Idaho, Nevada, Utah, Arizona, California, Oregon, Washington Territory, and Alaska. Each map shows the extent of the public surveys where such have been extended; also the names of counties and resources, so far as furnished by the data on hand.

No. 23. Connected map of the United States from ocean to ocean, exhibiting the extent of the public surveys, localities, land districts, seats of surveyor generals' offices and district offices; also localities of railroads of general interest, and of mineral deposits.

No. 24. Map of the world on Mercator's projection.

No. 1.—*Tabular statement showing the number of acres of public lands surveyed in the following land States and Territories up to June 30, 1863, during the last fiscal year, and the total of the public lands surveyed up to June 30, 1869; also the total area of the public domain remaining unsurveyed within the same.*

Land States and Territories.	Area of the land States and Territories.		Number of acres of public lands surveyed up to June 30, 1863.	Number of acres of public lands surveyed prior to June 30, 1863, not heretofore reported.	Number of acres of public lands surveyed within the fiscal year ending June 30, 1869.	Total of the public lands surveyed up to June 30, 1869.	Total area of public lands remaining unsurveyed.
	In acres.	In square miles.					
Wisconsin.....	34, 511, 360	53, 924	34, 511, 360	.....	.....	34, 511, 360	.....
Iowa.....	35, 228, 800	55, 045	35, 228, 800	.....	.....	35, 228, 800	.....
Minnesota.....	53, 459, 840	83, 531	24, 023, 425	.....	1, 071, 961	25, 095, 386	28, 364, 454
Kansas.....	52, 043, 520	81, 318	23, 916, 087	.....	3, 155, 502	26, 061, 589	25, 981, 931
Nebraska.....	43, 636, 800	75, 995	16, 318, 905	.....	545, 240	16, 864, 145	31, 772, 655
California.....	129, 947, 840	188, 981	30, 408, 426	271, 162	199, 196	30, 878, 784	90, 069, 056
Nevada.....	71, 737, 741	112, 090	1, 368, 426	84, 534	1, 510, 107	2, 963, 127	68, 774, 614
Oregon.....	60, 975, 360	95, 274	7, 258, 438	.....	1, 110, 126	8, 368, 564	52, 606, 796
Washington Territory.....	44, 796, 160	69, 994	4, 451, 472	11, 424	600, 879	5, 063, 775	39, 732, 385
Colorado Territory.....	66, 880, 000	104, 500	3, 166, 702	.....	1, 190, 130	4, 356, 832	62, 523, 168
Utah Territory.....	54, 065, 075	84, 476	2, 517, 912	.....	7, 960	2, 525, 872	51, 539, 203
Arizona Territory.....	72, 906, 304	113, 916	.....	470, 531	215, 497	686, 028	72, 220, 276
New Mexico Territory.....	77, 568, 640	121, 201	2, 982, 753	.....	.....	2, 982, 753	74, 585, 887
Dakota Territory.....	96, 595, 840	150, 932	3, 531, 730	.....	1, 347, 218	4, 878, 948	91, 716, 892
Idaho Territory.....	55, 228, 160	86, 294	255, 111	.....	255, 862	510, 973	54, 717, 487
Montana Territory.....	92, 016, 640	143, 776	183, 847	22, 451	613, 074	819, 372	91, 197, 268
Wyoming Territory.....	62, 645, 120	97, 883	.....	.....	.....	.....	62, 645, 120
Missouri.....	41, 824, 000	65, 350	41, 824, 000	.....	.....	41, 824, 000	.....
Alabama.....	32, 462, 080	50, 722	32, 462, 080	.....	.....	32, 462, 080	.....
Mississippi.....	30, 179, 840	47, 156	30, 179, 840	.....	.....	30, 179, 840	.....
Louisiana.....	26, 461, 440	41, 346	23, 461, 440	.....	.....	23, 461, 440	3, 000, 000
Arkansas.....	33, 406, 720	52, 198	33, 406, 720	.....	.....	33, 406, 720	.....
Florida.....	37, 931, 520	59, 268	26, 631, 520	.....	.....	26, 631, 520	11, 300, 000
Ohio.....	25, 576, 960	39, 964	25, 576, 960	.....	.....	25, 576, 960	.....
Indiana.....	21, 637, 760	33, 809	21, 637, 760	.....	.....	21, 637, 760	.....
Michigan.....	36, 128, 640	56, 451	36, 128, 640	.....	.....	36, 128, 640	.....
Illinois.....	35, 462, 400	55, 410	35, 462, 400	.....	.....	35, 462, 400	.....
Indian Territory.....	44, 154, 240	68, 991	.....	.....	.....	.....	44, 154, 240
Alaska.....	369, 529, 600	577, 390	.....	.....	.....	.....	369, 529, 600
Total.....	1,834,998,400	2, 867, 185	496, 884, 754	860, 102	10, 822, 812	508, 567, 663	1,326,430,732

\*Of which 5,976.24 acres are Quapaw lands ceded to the United States by the 4th article, treaty of February 23, 1867, U. S. Laws, vol. 15, page 514.

†Of which 400,484.94 are Sisseton and Wapeton bands of Dakota or Sioux Indian lands reserved by the 3d article, treaty of February 19, 1867, *vide* U. S. Laws, vol. 15, page 506.

JOS. S. WILSON, *Commissioner*.

DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*

No. 2.—Statement of public lands sold, of cash and bounty land scrip received therefor, number sixth section of said act; also of land located with scrip under the agricultural college and thereof, and statement of incidental expenses thereon, in the first half year of the fiscal year

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, and amount received for the same, for the first half of the fiscal year ending December 31, 1863.		Exhibit of the amount paid in cash and in bounty land scrip, respectively, for the first half of the fiscal year ending December 31, 1863, mentioned in the first column.	
		Acres.	Amount.	Cash.	Bounty land scrip.
Ohio .....	Chillicothe .....	202.20	\$340 50	\$340 50	.....
Indiana .....	Indianapolis .....	.....	.....	.....	.....
Illinois .....	Springfield .....	798.20	1,380 37	1,380 37	.....
Missouri .....	Booneville .....	8,828.26	12,226 58	12,126 58	100 00
Do.....	Ironton .....	2,087.25	3,159 66	3,159 66	.....
Do.....	Springfield .....	5,199.57	8,272 28	8,272 28	.....
Total .....	.....	16,115.08	23,658 52	23,558 52	100 00
Alabama .....	Mobile .....	.....	.....	.....	.....
Do.....	Huntsville .....	Excess pay's.	44 13	44 13	.....
Do.....	Montgomery .....	.....	233 85	233 85	.....
Total .....	.....	.....	277 98	277 98	.....
Mississippi .....	Jackson .....	.....	59 73	59 73	.....
Louisiana .....	New Orleans .....	.....	279 28	279 28	.....
Do.....	Monroe .....	.....	.....	.....	.....
Do.....	Natchitoches .....	.....	.....	.....	.....
Total .....	.....	.....	279 28	279 28	.....
Michigan .....	Detroit .....	7,184.16	10,465 92	10,365 92	100 00
Do.....	East Saginaw .....	28,582.35	40,785 59	28,683 71	12,101 98
Do.....	Ionia .....	9,601.11	20,632 90	18,332 90	2,300 00
Do.....	Marquette .....	16,234.79	21,243 55	21,243 55	.....
Do.....	Traverse City .....	13,293.22	50,487 87	50,487 87	.....
Total .....	.....	74,895.63	143,615 83	129,113 85	14,501 98
Arkansas .....	Little Rock .....	Excess pay's.	20 74	20 74	.....
Do.....	Washington .....	do .....	12 25	12 25	.....
Do.....	Clarksville .....	do .....	29 92	29 92	.....
Total .....	.....	.....	62 91	62 91	.....
Florida .....	Tallahassee .....	.....	379 26	379 26	.....
Iowa .....	Fort Des Moines .....	1,059.41	1,324 27	1,324 27	.....
Do.....	Council Bluffs .....	124.05	260 12	260 12	.....
Do.....	Fort Dodge .....	2,896.27	5,727 86	5,727 86	.....
Do.....	Sioux City .....	22,683.20	44,287 94	44,087 94	200 00
Total .....	.....	26,762.93	51,600 19	51,400 19	200 00
Wisconsin .....	Menasha .....	12,327.01	15,658 82	15,258 82	400 00
Do.....	Falls of St. Croix .....	13,424.55	29,076 69	29,076 69	.....
Do.....	Stevens Point .....	11,261.41	14,127 04	11,548 38	2,578 66
Do.....	La Crosse .....	10,971.25	16,125 75	16,125 75	.....
Do.....	Bayfield .....	2,519.31	4,947 36	4,947 36	.....
Do.....	Eau Claire .....	22,668.78	29,601 37	29,601 37	.....
Total .....	.....	73,172.31	109,537 03	106,558 37	2,978 66



*ber of acres entered under the homestead law of May 20, 1862, of commissions received under mechanic act of July 2, 1862, and commissions received by registers and receivers on the value commencing July 1, 1868, and ending June 30, 1869.*

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of registers' and receivers' commissions under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the first half of the fiscal year ending December 31, 1868.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862, and act amendatory.		Quantity of land located in the first half of said fiscal year, with agricultural college scrip, act July 2, 1862, and registers' and receivers' commissions on value of land located.		Incident <sup>1</sup> expenses.
Area of homestead entries in acres.	Fees.	Amount of registers and receivers' commissions.	Aggregate of fees and registers and receivers' commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
570.81	\$60	\$18 26	\$78 26	773.01	\$400 50	-----	-----	\$622 18
-----	-----	-----	-----	-----	-----	-----	-----	250 00
-----	-----	-----	-----	798.20	1,380 37	-----	-----	763 00
32,674.83	3,060	1,133 60	4,193 60	41,503.09	15,286 58	2,403.88	\$60 00	878 17
26,087.95	1,905	688 00	2,593 00	28,175.20	5,064 66	1,120.00	28 00	599 30
32,224.72	2,750	996 00	3,746 00	37,424.29	11,022 28	-----	-----	1,118 14
90,987.50	7,715	2,817 60	10,532 60	107,102.58	31,373 52	3,523.88	88 00	2,595 61
-----	-----	-----	-----	-----	-----	-----	-----	500 00
25,462.86	1,690	638 46	2,328 46	25,462.86	1,734 13	-----	-----	500 90
69,780.55	865	2,026 00	2,891 00	69,780.55	1,098 85	-----	-----	375 00
95,243.41	2,555	2,664 46	5,219 46	95,243.41	2,832 98	-----	-----	1,375 90
35,503.26	2,515	978 31	3,493 31	35,503.26	2,574 73	-----	-----	501 18
20,424.21	860	546 68	1,406 68	20,424.21	1,139 28	-----	-----	598 58
-----	-----	-----	-----	-----	-----	-----	-----	500 00
-----	-----	-----	-----	-----	-----	-----	-----	300 00
20,424.21	860	546 68	1,406 68	20,424.21	1,139 28	-----	-----	1,488 58
12,572.39	1,430	548 46	1,978 46	19,756.55	11,895 92	-----	-----	913 08
21,427.46	1,760	670 81	2,430 81	50,009.81	42,545 59	-----	-----	940 23
28,596.26	2,935	1,133 02	4,068 02	38,197.37	23,567 90	-----	-----	1,197 99
2,600.49	165	64 98	229 98	18,835.28	21,408 55	-----	-----	2,287 95
23,826.13	2,420	947 87	3,367 87	37,119.35	52,907 87	-----	-----	2,677 04
89,022.73	8,710	3,365 14	12,075 14	163,918.36	152,325 83	-----	-----	8,016 29
7,323.48	660	255 58	915 58	7,323.48	680 74	-----	-----	701 40
25,059.72	1,875	687 23	2,562 23	25,059.72	1,887 25	-----	-----	955 49
21,496.68	570	721 74	1,291 74	21,496.68	599 92	-----	-----	560 00
53,879.88	3,105	1,664 55	4,769 55	53,879.88	3,167 91	-----	-----	2,216 89
34,300.28	2,495	1,012 00	3,507 00	34,300.28	2,874 26	-----	-----	500 56
711.36	80	20 79	100 79	1,770 77	1,404 27	-----	-----	870 13
1,522.13	190	76 00	266 00	1,646.18	450 12	-----	-----	512 08
17,034.40	2,095	810 14	2,905 14	19,930.67	7,822 86	160.00	4 00	652 22
22,632.16	2,040	817 00	2,857 00	45,315.36	46,327 94	31,200.00	780 00	1,744 82
41,900.05	4,405	1,723 93	6,128 93	68,662.98	56,005 19	31,360.00	784 00	3,779 25
2,363.93	205	71 11	276 11	14,690.94	15,863 82	-----	-----	1,018 93
16,766.13	1,560	691 39	2,161 39	30,190.68	30,636 69	-----	-----	1,194 39
8,241.27	615	207 37	822 37	19,502.68	14,742 04	-----	-----	859 43
39,395.45	2,875	1,057 53	3,932 53	50,366.70	19,000 75	-----	-----	822 52
134.08	10	3 35	13 35	2,653.39	4,957 36	-----	-----	925 81
18,588.55	1,460	536 50	1,996 50	41,257.33	31,061 37	-----	-----	1,187 92
85,489.41	6,725	2,477 25	9,202 25	158,661.72	116,262 03	-----	-----	6,008 10

## No. 2.—Statement of public lands sold, of cash and bounty land scrip received therefor,

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, and amount received for the same, for the first half of the fiscal year ending December 31, 1868.		Exhibit of the amount paid in cash and in bounty land scrip, respectively, for the first half of the fiscal year ending December 31, 1868, mentioned in the first column.	
		Acres.	Amount.	Cash.	Bounty land scrip.
California.....	San Francisco.....	88,222.36	\$118,044 06	\$118,044 06	.....
Do.....	Marysville.....	66,167.40	87,373 17	87,373 17	.....
Do.....	Humboldt.....	8,278.56	10,348 20	10,348 20	.....
Do.....	Stockton.....	323,211.61	409,522 82	409,522 82	.....
Do.....	Visalia.....	150,935.71	188,669 64	188,669 64	.....
Do.....	Sacramento.....	15,711.44	22,408 69	22,408 69	.....
Total.....		652,527.08	836,366 58	836,366 58	.....
Nevada.....	Carson City.....	1,651.87	2,177 33	2,177 33	.....
Do.....	Austin.....	9.14	55 00	55 00	.....
Do.....	Belmont.....	.....	.....	.....	.....
Do.....	Aurora.....	.....	.....	.....	.....
Total.....		1,661.01	2,232 33	2,232 33	.....
Washington Ter...	Olympia.....	47,669.30	59,586 62	59,586 62	.....
Do.....	Vancouver.....	5,603.13	7,003 91	7,003 91	.....
Total.....		53,272.43	66,590 53	66,590 53	.....
Minnesota.....	Taylor's Falls.....	9,959.85	13,544 78	13,544 78	.....
Do.....	St. Cloud.....	14,683.83	18,359 64	18,359 64	.....
Do.....	Winnepago City.....	6,164.42	8,664 34	8,664 34	.....
Do.....	St. Peter.....	9,993.59	21,337 04	21,337 04	.....
Do.....	Greenleaf.....	3,883.58	8,473 53	8,473 53	.....
Do.....	Du Luth.....	5,844.87	9,962 02	9,962 02	.....
Do.....	Alexandria.....	.....	.....	.....	.....
Total.....		50,530.14	80,341 35	80,341 35	.....
Oregon.....	Oregon City.....	3,241.25	4,051 66	4,051 66	.....
Do.....	Roseburg.....	9,738.28	12,193 34	12,193 34	.....
Do.....	Le Grand.....	2,956.68	3,891 35	3,891 35	.....
Total.....		15,936.21	20,136 35	20,136 35	.....
Kansas.....	Topeka.....	1,305.79	1,955 29	1,955 29	.....
Do.....	Junction City.....	2,931.23	4,161 76	4,099 26	\$62 50
Do.....	Humboldt.....	2,092.21	3,222 87	3,222 87	.....
Total.....		6,329.23	9,339 92	9,277 42	62 50
Nebraska.....	Omaha City.....	11,389.33	19,147 29	19,122 29	25 00
Do.....	Beatrice.....	25,478.34	31,847 96	31,647 96	200 00
Do.....	Lincoln.....	9,971.95	17,138 03	17,138 03	.....
Do.....	Dakota City.....	5,853.94	7,317 52	7,317 52	.....
Total.....		52,693.56	75,450 80	75,225 80	225 00
New Mexico Ter...	Santa Fé.....	480.00	600 00	600 00	.....
Dakota Territory..	Vermillion.....	4,531.00	5,663 82	5,663 82	.....
Colorado Territory.	Denver City.....	1,015.46	1,367 39	1,367 39	.....
Do.....	Fair Play.....	.....	.....	.....	.....
Do.....	Central City.....	2,721.59	3,431 26	3,431 26	.....
Total.....		3,737.05	4,798 65	4,798 65	.....

number of acres entered under the homestead law of May 20, 1862, &c.—Continued.

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of registers' and receivers' commissions under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the first half of the fiscal year ending December 31, 1868.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862, and act amendatory.		Quantity of land located in the first half of said fiscal year, with agricultural college scrip, act July 2, 1862, and registers' and receivers' commissions on value of land located.		Incidental expenses.
Area of homestead entries in acres.	Fees.	Amount of registers' and receivers' commissions.	Aggregate of fees and registers' and receivers' commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
11,853.68	\$785	\$466 50	\$1,251 50	100,076.04	\$118,829 06	8,960.00	\$224 00	\$3,459 30
2,930.71	250	147 92	397 92	69,098.11	87,623 17	.....	.....	2,984 78
2,652.06	165	99 00	264 00	10,930.62	10,513 20	480.00	12 00	1,131 82
12,138.12	820	485 18	1,305 18	335,349.73	410,342 82	82,494.98	2,144 00	3,628 19
4,009.04	330	197 82	527 82	154,944.75	188,999 64	48,000.00	1,200 00	3,649 34
830.51	105	63 00	168 00	16,541.95	22,513 69	.....	.....	1,097 28
34,414.12	2,455	1,459 42	3,914 42	686,941.20	838,821 58	139,934.98	3,580 00	15,941 71
1,100.01	70	42 00	112 00	2,751.88	2,247 33	.....	.....	543 54
1,280.00	80	48 00	128 00	1,289.14	135 00	.....	.....	725 10
.....	.....	.....	.....	.....	.....	.....	.....	357 34
2,380.01	150	90 00	240 00	4,041.02	2,382 33	.....	.....	1,626 98
9,966.77	640	373 16	1,013 16	57,636.07	60,226 62	3,040.00	76 00	2,141 70
7,251.67	455	270 42	725 42	12,854.80	7,458 91	.....	.....	1,213 23
17,218.44	1,095	643 58	1,738 58	70,490.87	67,685 53	3,040.00	76 00	3,354 93
16,061.67	1,440	562 83	2,002 83	26,021.52	14,984 78	1,280.00	32 00	613 87
85,418.82	5,980	2,338 53	8,318 53	100,102.65	24,339 64	16,160.00	404 00	867 93
26,684.00	2,405	927 08	3,332 08	32,848.42	11,069 34	.....	.....	725 01
50,996.58	3,615	1,381 54	4,996 54	60,990.17	24,952 04	.....	.....	1,224 88
27,201.41	2,600	1,026 34	3,626 34	31,084.99	11,073 53	1,120.00	28 00	807 36
.....	.....	.....	.....	5,844.87	9,962 02	2,560.00	64 00	815 14
.....	.....	.....	.....	.....	.....	.....	.....	354 00
206,362.48	16,040	6,236 32	22,276 32	256,892.62	96,381 35	21,120.00	528 00	5,408 19
12,878.44	850	422 99	1,332 99	16,119.69	4,901 66	.....	.....	889 61
14,298.65	925	536 21	1,461 21	24,036.93	13,118 34	2,400.00	60 00	1,409 03
6,889.45	440	258 36	698 36	9,846.13	4,331 35	.....	.....	1,270 38
34,666.54	2,215	1,277 56	3,492 56	50,002.75	22,351 35	2,400.00	60 00	3,569 07
12,564.87	1,440	565 26	2,005 26	13,870.66	3,385 29	320.00	8 00	733 00
67,788.10	5,010	1,933 74	6,963 74	70,719.33	9,171 76	1,440.00	36 00	638 42
16,659.15	1,380	534 13	1,914 13	18,751.36	4,602 87	7,360.00	184 00	709 92
97,012.12	7,830	3,053 13	10,883 13	103,341.35	17,169 92	9,120.00	228 00	2,081 34
42,757.94	4,245	1,682 59	5,927 59	54,147.27	23,322 29	7,680.00	192 00	882 92
33,952.15	2,250	875 83	3,125 83	59,430.49	34,097 96	640.00	16 00	1,433 20
39,351.06	4,735	1,878 33	6,613 33	49,323.01	21,873 03	10,880.00	272 00	1,003 36
19,922.95	1,290	498 11	1,788 11	25,776.89	8,607 52	20,800.00	520 00	672 16
135,984.10	12,520	4,934 86	17,454 86	188,677.66	87,970 80	40,000.00	1,000 00	3,991 64
480.00	30	18 00	48 00	960.60	630 00	.....	.....	1,138 55
36,794.98	2,330	919 86	3,249 86	41,325.98	7,993 82	.....	.....	684 17
1,595.16	155	91 42	246 42	2,610.62	1,522 39	.....	.....	1,718 52
480.00	60	36 00	96 00	3,201.59	3,491 26	.....	.....	1,200 97
.....	.....	.....	.....	.....	.....	.....	.....	1,072 89
2,075.16	215	127 42	342 42	5,812.21	5,013 45	.....	.....	3,992 38



No. 2.—*Statement of public lands sold, of cash and bounty land scrip received therefor,*

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, and amount received for the same, for the first half of the fiscal year ending December 31, 1868.		Exhibit of the amount paid in cash and in bounty land scrip, respectively, for the first half of the fiscal year ending December 31, 1868, mentioned in the first column.	
		Acres.	Amount.	Cash.	Bounty land scrip.
Idaho Territory....	Boise .....	2, 177. 64	\$2, 722 09	\$2, 722 09	.....
Do .....	Lewiston .....				.....
Total .....		2, 177. 64	2, 722 09	2, 722 09	.....
Montana Territory.	Helena .....	4, 006. 72	5, 085 77	5, 085 77	.....
Arizona Territory .	Prescott .....				.....
Utah Territory ....	Salt Lake City .....				.....
Wyoming Territ'y..	.....				.....

DEPARTMENT OF THE INTERIOR, *General Land Office, November 1, 1869.*

number of acres entered under the homestead law of May 20, 1862, &c.—Continued.

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of registers' and receivers' commissions under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the first half of the fiscal year ending December 31, 1868.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862, and act amendatory.		Quantity of land located in the first half of said fiscal year, with agricultural college scrip, act July 2, 1862, and registers' and receivers' commissions on value of land located.		Incidental expenses.
Area of homestead entries in acres.	Fees.	Amount of registers' and receivers' commissions.	Aggregate of fees and registers' and receivers' commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
1, 259.95	\$90	\$54 00	\$144 00	3, 437.59	\$2, 812 09	.....	.....	\$2, 244 90
.....	.....	.....	.....	.....	.....	.....	.....	250 00
1, 259.95	90	54 00	144 00	3, 437.59	2, 812 09	.....	.....	2, 494 90
3, 358.00	210	126 00	336 00	7, 364.72	5, 295 77	.....	.....	1, 378 70
.....	.....	.....	.....	.....	.....	.....	.....	80 16
.....	.....	.....	.....	.....	.....	.....	.....	320 65
.....	.....	.....	.....	.....	.....	.....	.....	.....

JOS. S. WILSON, *Commissioner*.

No. 2.—Statement of the public land sold, of cash and bounty land scrip received therefor,

## RECAPIT

States and Territories.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, and amount received for the same for the first half of the fiscal year ending December 31, 1868.		Exhibit of the amount paid for in cash and in bounty land scrip, respectively, for the first half of the fiscal year ending December 31, 1868 mentioned in the first column.	
	Acres.	Amount.	Cash.	Military scrip.
Ohio .....	202.20	\$340 50	\$340 50	.....
Indiana .....	.....	.....	.....	.....
Illinois .....	798.20	1,380 37	1,380 37	.....
Missouri .....	16,115.08	23,658 52	23,558 52	\$100 00
Alabama .....	Excess pay'ts.	277 98	277 98	.....
Mississippi .....	do	59 73	59 73	.....
Louisiana .....	do	279 28	279 28	.....
Michigan .....	74,895.63	143,615 83	129,113 85	14,501 98
Arkansas .....	Excess pay'ts.	62 91	62 91	.....
Florida .....	do	379 26	379 26	.....
Iowa .....	26,762.93	51,600 19	51,400 19	200 00
Wisconsin .....	73,172.31	109,537 03	106,558 37	2,978 66
California .....	652,527.08	836,366 58	836,366 58	.....
Nevada .....	1,661.01	2,232 33	2,232 33	.....
Washington Territory .....	53,272.43	66,590 53	66,590 53	.....
Minnesota .....	50,530.14	80,341 35	80,341 35	.....
Oregon .....	15,936.21	20,136 35	20,136 35	.....
Kansas .....	6,329.23	9,339 92	9,277 42	62 50
Nebraska .....	52,693.56	75,450 80	75,225 80	225 00
New Mexico Territory .....	480.00	600 00	600 00	.....
Dakota Territory .....	4,531.00	5,663 82	5,663 82	.....
Colorado Territory .....	3,737.05	4,798 65	4,798 65	.....
Idaho Territory .....	2,177.64	2,732 09	2,732 09	.....
Montana Territory .....	4,006.72	5,085 77	5,085 77	.....
Arizona Territory .....	.....	.....	.....	.....
Utah Territory .....	.....	.....	.....	.....
Wyoming Territory .....	.....	.....	.....	.....
Total .....	1,039,828.42	1,440,519.79	1,422,451.65	18,068.14

To which add number of acres located with agricultural scrip and commissions  
Also, commissions received on homestead entries, as shown in column No. 3 of



number of acres entered under the homestead law of May 29, 1862, &c.—Continued.

## ULATION.

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of commissions of registers and receivers, under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the first half of the fiscal year ending December 31, 1868.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862 and acts amendatory.		Quantity of land located in the first half of said fiscal year, with agricultural college scrip, act July 2, 1862, and registers' and receivers' commissions on value of land located.		Incident'l expenses.
Area of homestead entries in acres.	Aggregate of \$5 and \$10 payments.	Amount of registers' and receivers' commissions.	Aggregate of \$5 and \$10 payments and registers' and receivers' commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
570.81	\$60 00	\$18 26	\$78 26	773.01	\$400 50			\$622 18
								250 00
				798.20	1,380 37			763 00
90,987.50	7,715 00	2,817 00	10,532 60	107,102.58	31,373 52	3,523.88	\$88 00	2,595 61
95,243.41	2,555 00	2,664 46	5,219 46	95,243.41	2,832 98			1,375 90
35,503.26	2,515 00	978 31	3,493 31	35,503.26	2,574 73			501 18
20,424.21	860 00	546 68	1,406 68	20,424.21	1,139 28			1,488 58
89,022.73	8,710 00	3,365 14	12,075 14	163,918.36	152,325 83			8,016 29
53,879.88	3,105 00	1,664 55	4,769 55	53,879.88	3,167 91			2,216 89
34,300.28	2,495 00	1,012 00	3,507 00	34,300.28	2,874 26			500 56
41,900.05	4,405 00	1,723 93	6,128 93	68,662.98	56,005 19	31,360.00	784 00	3,779 25
85,489.41	6,725 00	2,477 25	9,202 25	158,661.72	116,262 03			6,008 10
34,414.12	2,455 00	1,459 42	3,914 42	686,941.20	838,821 58	139,934.98	3,580 00	15,941 71
2,380.01	150 00	90 00	240 00	4,041.02	2,382 33			1,626 98
17,218.44	1,095 00	643 58	1,738 58	70,490.87	67,685 53	3,040.00	76 00	3,354 93
206,362.48	16,040 00	6,236 32	22,276 32	256,892.62	96,381 35	21,120.00	528 00	5,408 19
34,066.54	2,215 00	1,277 56	3,492 56	50,002.75	22,351 35	2,400.00	60 00	3,569 07
97,012.12	7,830 00	3,053 13	10,883 13	103,341.35	17,169 92	9,120.00	228 00	2,081 34
135,984.10	12,529 00	4,934 86	17,454 86	188,677.66	87,970 80	40,000.00	1,000 00	3,991 64
480.00	30 00	18 00	48 00	960.00	630 00			1,138 55
36,794.98	2,330 00	919 86	3,249 86	41,325.98	7,993 82			684 17
2,075.16	215 00	127 42	342 42	5,812.21	5,013 65			3,992 38
1,250.95	90 00	54 00	144 00	3,437.59	2,812 09			2,494 90
3,358.00	210 00	126 00	336 00	7,364.72	5,295 77			1,378 70
								80 16
								320 65
1,118,727.44	84,325 00	36,208 33	120,533 33	2,158,555.86	1,524,844 79	250,498.86	6,344 00	74,180 91
thereon.....				250,498.86	6,344 00			
section 3.....					36,208 33			
				2,409,054.72	1,567,397 12			

JOS. S. WILSON, *Commissioner*.

No. 3.—Statement of public lands sold, of cash and bounty land scrip received therefor, number sixth section of said act, also of land located with scrip under the agricultural college and thereof, and statement of incidental expenses thereon in the second half of the fiscal year com

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, amount received for the same, for the second half of the fiscal year ending June 30, 1869.		Exhibit of the amount paid for in cash and bounty land scrip, respectively, for the second half of the fiscal year ending June 30, 1869, mentioned in first column.	
		Acres.	Amount.	Cash.	Military scrip
Ohio .....	Chillicothe .....	369.00	\$1,042 00	\$1,042 00	.....
Indiana .....	Indianapolis .....				
Illinois .....	Springfield .....	656.86	1,069 71	1,069 71	.....
Missouri .....	Boonville .....	8,327.32	13,045 41	12,458 86	\$586 55
Do .....	Ironton .....	3,470.06	5,322 65	5,322 65	
Do .....	Springfield .....	6,485.60	9,840 60	9,840 60	
Total .....		18,282.98	28,208 66	27,622 11	586 55
Alabama .....	Mobile .....				
Do .....	Huntsville .....	291.04	402 98	402 98	
Do .....	Montgomery .....	395.29	935 07	935 07	
Total .....		686.33	1,338 05	1,338 05	
Mississippi .....	Jackson .....	Excess pay'ts	146 69	146 69	
Louisiana .....	New Orleans .....	39.96	613 40	613 40	
Do .....	Monroe .....				
Do .....	Natchitoches .....				
Total .....		39.96	613 40	613 40	
Michigan .....	Detroit .....	6,006.70	7,678 42	7,644 05	34 37
Do .....	East Saginaw .....	7,944.28	11,633 69	9,859 69	1,774 00
Do .....	Ionia .....	9,813.62	21,681 40	21,681 40	
Do .....	Marquette .....	8,711.12	12,835 16	12,235 16	600 00
Do .....	Traverse City .....	8,837.20	31,081 78	31,081 78	
Total .....		41,313.12	84,910 45	82,502 08	2,408 37
Arkansas .....	Little Rock .....	Excess pay'ts	111 18	11 18	100 00
Do .....	Washington .....	do .....	43 77	43 77	
Do .....	Clarksville .....	67.54	222 52	222 52	
Total .....		67.54	377 47	277 47	100 00
Florida .....	Tallahassee .....	Excess pay'ts	1,061 48	1,061 48	
Iowa .....	Fort Des Moines .....	468.24	585 32	585 32	
Do .....	Council Bluffs .....	180.02	375 03	375 03	
Do .....	Fort Dodge .....	8,530.87	19,473 56	19,473 56	
Do .....	Sioux City .....	150,575.79	304,818 23	304,618 84	199 39
Total .....		150,754.92	325,252 14	325,052 75	199 39

ber of acres entered under the homestead law of May 20, 1862, of commissions received under mechanic act of July 2, 1862, and commissions received by registers and receivers on the value mencing July 1, 1863, and ending June 30, 1869.

Quantity of land entered under the homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts, and also with aggregate of commissions of registers and receivers, under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the second half of the fiscal year ending June 30, 1869.				Aggregate disposed of for cash, also bounty land scrip, and of cash under homestead act of 1862, and acts amendatory.		Quantity of land located in second half of fiscal year with scrip issued under agricultural college and mechanic act of July 2, 1862, and registers' and receivers' commissions on value of land located.		Incidental expenses.
Area of homestead entries in acres.	Aggregate in \$5 and \$10 payments.	Am't of registers' and receivers' commissions.	Aggregate of \$5 and \$10 payments & commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
360.00	\$45 00	\$18 00	\$63 00	730.00	\$1,087 00	.....	.....	\$672 33
.....	.....	.....	.....	.....	.....	.....	.....	361 11
.....	.....	.....	.....	656.86	1,069 71	.....	.....	772 17
55,428.35	4,585 00	1,685 43	6,270 43	63,755.67	17,630 41	1,280.00	\$28 00	1,392 15
45,655.39	3,370 00	1,198 02	4,568 02	49,125.45	8,692 65	.....	.....	689 09
66,895.10	5,390 00	2,021 00	7,411 00	73,380.70	15,230 60	320.00	8 00	762 50
167,978.84	13,345 00	4,904 45	18,249 45	186,261.82	41,553 66	1,600.00	36 00	2,844 04
.....	.....	.....	.....	.....	.....	.....	.....	528 53
32,994.37	2,145 00	825 14	2,970 14	33,285.41	2,547 98	.....	.....	508 02
80,766.66	9,480 00	2,513 00	11,993 00	81,161.95	10,415 07	.....	.....	1,924 26
113,761.03	11,625 00	3,338 14	14,963 14	114,447.36	12,963 05	.....	.....	2,960 81
43,306.78	3,350 00	1,213 10	4,563 10	43,306.78	3,496 69	.....	.....	1,013 97
42,579.00	2,805 00	1,122 00	3,927 00	42,618.96	3,418 40	.....	.....	686 51
.....	.....	.....	.....	.....	.....	.....	.....	500 00
.....	.....	.....	.....	.....	.....	.....	.....	460 00
42,579.00	2,805 60	1,122 00	3,927 00	42,618.96	3,418 40	.....	.....	1,646 51
4,718.25	320 00	121 98	441 98	10,724.95	7,998 42	.....	.....	737 41
15,957.95	1,200 00	530 15	1,790 15	23,902.23	12,893 69	.....	.....	1,677 71
23,970.31	2,390 00	1,060 50	3,450 50	33,784.13	24,071 40	.....	.....	962 73
2,525.65	165 00	74 89	239 89	11,236.77	13,000 16	.....	.....	756 68
22,600.99	2,085 00	905 42	2,990 42	31,438.19	33,166 78	.....	.....	1,674 07
69,773.15	6,220 00	2,692 94	8,912 94	111,086.27	91,130 45	.....	.....	5,808 60
20,536.26	1,700 00	606 16	2,306 16	20,536.26	1,811 18	.....	.....	658 22
28,122.34	2,145 00	768 35	2,913 35	28,122.34	2,188 77	.....	.....	676 11
93,880.38	7,345 00	2,469 92	9,814 92	93,947.92	7,567 52	.....	.....	564 44
142,538.98	11,190 00	3,844 43	15,034 43	142,606.52	11,567 47	.....	.....	1,898 77
40,970.59	3,005 00	1,182 00	4,187 00	40,970.59	4,066 48	.....	.....	658 34
360.00	30 00	18 98	48 98	828.24	615 32	.....	.....	735 22
1,355.64	170 00	117 51	287 51	1,535.66	545 03	.....	.....	541 70
23,034.90	2,745 00	1,129 11	3,874 11	31,565.77	22,218 56	960.00	24 00	798 58
94,980.14	9,875 00	3,960 60	13,844 60	245,555.93	314,693 23	44,636.06	1,092 00	2,573 60
119,730.68	12,820 00	5,234 60	18,054 60	279,485.60	338,072 14	45,596.06	1,116 00	4,649 10



No. 3.—Statement of public lands sold, of cash and bounty land scrip received therefor,

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, amount received for the same, for the second half of the fiscal year ending June 30, 1869.		Exhibit of the amount paid for in cash and bounty land scrip respectively, for the second half of the fiscal year ending June 30, 1869, mentioned in first column.	
		Acres.	Amount.	Cash.	Military scrip.
Wisconsin	Menasha	4,544.08	\$5,830 11	\$5,730 11	\$100 00
Do.	Falls of St. Croix	11,217.63	26,079 55	26,079 55	
Do.	Stevens Point	6,155.19	7,694 17	7,394 17	300 00
Do.	La Crosse	7,076.49	9,613 76	9,574 65	39 11
Do.	Bayfield	9,938.89	20,087 02	20,087 02	
Do.	Eau Claire	112,355.80	167,480 49	166,780 49	700 00
Total		151,288.08	236,785 10	235,645 99	1,139 11
California	San Francisco	243,257.82	312,745 74	312,745 74	
Do.	Marysville	231,999.48	291,472 83	291,472 83	
Do.	Humboldt	34,172.82	42,716 03	42,716 03	
Do.	Stockton	88,985.29	113,658 46	113,658 46	
Do.	Visalia	459,952.08	575,541 65	575,541 65	
Do.	Sacramento	15,899.82	26,160 67	26,160 67	
Total		1,074,267.31	1,362,295 38	1,362,295 38	
Nevada	Carson City				
Do.	Austin				
Do.	Belmont				
Do.	Aurora				
Total					
Washington Ter	Olympia	56,072.64	70,090 79	70,090 79	
Do.	Vancouver	12,889.81	16,112 26	16,112 26	
Total		68,962.45	86,203 05	86,203 05	
Minnesota	Taylor's Falls	1,937.64	2,782 46	2,782 46	
Do.	St. Cloud	14,903.14	18,675 00	18,675 00	
Do.	Winnebago City	5,672.43	8,162 51	8,162 51	
Do.	St. Peter	4,559.87	8,534 72	8,534 72	
Do.	Greenleaf	36,617.68	67,644 85	67,644 85	
Do.	Du Luth	7,869.01	10,389 55	10,389 55	
Do.	Alexandria	6,480.01	8,099 91	8,099 91	
Total		78,039.78	124,289 00	124,289 00	
Oregon	Oregon City	3,375.27	4,218 32	4,218 32	
Do.	Roseburg	11,927.82	14,969 89	14,969 89	
Do.	Le Grand	1,599.22	2,173 03	2,173 03	
Total		16,902.31	21,301 24	21,301 24	
Kansas	Topeka	3,106.99	6,207 94	6,207 94	
Do.	Junction City	27,881.84	35,722 40	35,722 40	
Do.	Humboldt	2,735.35	3,869 60	3,869 60	
Total		33,724.18	45,799 94	45,799 94	
Nebraska	Omaha City	18,906.45	31,340 07	31,340 07	
Do.	Beatrice	56,409.40	70,536 89	70,536 89	
Do.	Lincoln	24,737.08	43,313 87	43,313 87	
Do.	Dakota City	33,468.16	41,835 35	41,835 35	
Total		133,525.09	187,026 18	187,026 18	

number of acres entered under the homestead law of May 20, 1862, &c.—Continued.

Quantity of land entered under the homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of commissions of registers and receivers, under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the second half of the fiscal year ending June 30, 1869.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862, and acts amendatory.		Quantity of land located in second half of fiscal year with scrip issued under agricultural college and mechanic act of July 2, 1862, and registers' and receivers' commissions on value of land located.		Incidental expenses.
Area of homestead entries in acres.	Aggregate in \$5 and \$10 payments.	Am't of registers and receivers' commissions.	Aggregate of \$5 and \$10 payments & commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
7,063.36	\$515 00	\$225 59	\$740 59	11,607.44	\$6,345 11	.....	.....	\$745 45
20,686.74	1,700 00	688 28	2,388 28	31,904.37	27,779 55	.....	.....	1,079 36
4,630.14	400 00	125 05	525 05	10,785.33	8,094 17	.....	.....	665 19
31,368.42	2,345 00	949 92	3,294 92	38,444.91	11,958 76	.....	.....	792 23
.....	.....	.....	.....	9,938.89	20,087 02	.....	.....	1,412 44
11,327.59	1,040 00	359 55	1,399 55	123,683.39	168,520 49	.....	.....	2,237 14
75,076.25	6,000 00	2,348 39	8,348 39	226,364.33	242,785 10	.....	.....	6,931 86
4,056.68	265 00	209 50	474 50	247,314.50	313,010 74	6,251.26	\$156 00	3,346 97
5,084.96	365 00	270 40	635 40	237,084.44	291,837 83	.....	.....	3,169 98
4,458.00	340 00	298 86	548 86	38,600.82	43,056 03	1,250.00	32 00	1,611 80
7,563.39	500 00	300 63	800 63	96,548.68	114,158 46	.....	.....	3,168 73
3,412.30	260 00	190 50	450 50	463,364.38	575,801 65	10,741.87	268 00	3,863 71
706.81	90 00	70 23	160 23	16,606.63	26,250 67	.....	.....	1,078 21
25,252.14	1,820 00	1,250 12	3,070 12	1,099,519.45	1,364,115 38	18,273.13	456 00	16,439 40
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	500 60
.....	.....	.....	.....	.....	.....	.....	.....	500 00
.....	.....	.....	.....	.....	.....	.....	.....	1,000 60
15,697.88	1,005 00	625 61	1,630 61	71,770.52	71,095 79	638.75	16 00	2,201 80
12,651.13	795 00	567 83	1,362 83	25,540.94	16,907 26	2,400.00	56 00	1,169 47
23,349.01	1,800 00	1,193 44	2,993 44	97,311.46	88,003 05	3,038.75	72 00	3,371 27
13,559.07	1,245 00	525 43	1,770 43	15,496.71	4,027 46	1,117.36	28 00	872 33
33,217.19	2,415 00	1,012 94	3,427 94	48,120.33	21,090 00	2,880.00	72 00	948 03
26,111.33	2,300 00	1,257 32	3,557 32	31,783.76	10,462 51	.....	.....	689 93
41,753.18	4,850 00	2,399 58	7,249 58	46,313.05	13,384 72	.....	.....	486 32
21,688.53	2,115 00	1,062 84	3,777 84	58,306.21	70,359 85	8,618.86	226 00	2,008 40
1,894.84	160 00	69 38	229 38	9,763.85	10,549 55	.....	.....	748 28
44,745.25	2,910 00	1,128 62	4,038 62	41,225.26	11,009 91	2,379.27	60 00	686 10
182,969.39	16,595 00	7,456 11	24,051 11	261,009.17	140,884 00	14,995.49	386 00	6,449 39
14,740.73	965 00	592 77	1,557 77	18,116.00	5,183 32	.....	.....	812 86
15,866.11	1,175 00	721 49	1,896 49	27,793.93	16,084 89	4,295.20	108 00	1,577 53
4,222.66	270 00	161 40	431 40	5,821.88	2,443 03	.....	.....	659 10
34,829.50	2,410 00	1,475 66	3,885 66	51,731.81	23,711 24	4,295.20	108 00	2,849 49
19,924.28	2,135 00	889 58	3,024 58	23,031.27	8,342 94	.....	.....	866 64
97,676.12	7,085 00	2,846 46	9,931 46	125,557.96	42,807 40	7,007.37	176 00	1,392 19
13,524.69	1,255 00	539 02	1,794 02	16,260.04	5,124 60	640.00	16 00	595 38
131,125.09	10,475 00	4,275 06	14,750 06	164,849.27	56,274 94	7,647.37	192 00	2,854 21
62,937.75	6,175 00	2,540 70	8,715 70	81,844.20	37,515 07	.....	.....	1,526 78
45,640.89	3,179 00	1,300 73	4,479 73	102,050.29	73,706 89	.....	.....	2,124 27
81,018.07	9,985 00	4,035 80	14,020 80	105,755.15	53,298 87	800.00	20 00	1,436 03
54,508.48	3,470 00	1,363 88	4,833 88	87,976.64	35,295 35	5,920.00	148 00	1,444 64
244,105.19	22,800 00	9,241 21	32,041 21	377,626.28	209,826 18	6,720.00	168 00	6,531 72

No. 3.—Statement of public lands sold, of cash and bounty land scrip received therefor,

States and Territories.	Land offices.	Quantity sold for cash and bounty land scrip at and above the minimum price of \$1 25, amount received for the same, for the second half of the fiscal year ending June 30, 1869.		Exhibit of the amount paid for in cash and bounty land scrip, respectively, for the second half of the fiscal year ending June 30, 1869, mentioned in first column.	
		Acres.	Amount.	Cash.	Military scrip.
New Mexico Ter...	Santa Fé.....				
Dakota Territory..	Vermillion.....	10, 035. 57	\$12, 544 49	\$12, 544 49	
Colorado Territory.	Denver City.....	8, 613. 39	14, 898 50	14, 898 50	
Do.....	Fair Play.....	160. 00	200 00	200 00	
Do.....	Central City.....	800. 00	1, 255 00	1, 255 00	
Total.....		9, 573. 39	16, 353 50	16, 353 50	
Idaho Territory....	Boise City.....	5, 308. 44	6, 635 66	6, 635 66	
Do.....	Lewiston.....				
Total.....		5, 308. 44	6, 635 66	6, 635 66	
Montana Territory.	Helena.....	5, 293. 31	6, 825 32	6, 825 32	
Arizona Territory .	Prescott.....				
Utah Territory ....	Salt Lake City.....	51, 638. 26	64, 598 65	64, 598 65	
Wyoming Territory					

DEPARTMENT OF THE INTERIOR, *General Land Office, November 1, 1869,*



number of acres entered under the homestead law of May 20, 1862, &c.—Continued.

Quantity of land entered under the homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of commissions of registers and receivers, under section 6 of said act, and of act approved March 21, 1864, amendatory thereof, for the second half of the fiscal year ending June 30, 1869.				Aggregate disposed of for cash; also bounty land scrip, and of cash under homestead act of 1862, and acts amendatory.		Quantity of land located in second half of fiscal year, with scrip issued under agricultural college and mechanic act of July 2, 1862, and registers' and receivers' commissions on value of land located.		Incidental expenses.
Area of homestead entries in acres.	Aggregate in \$5 and \$10 payments.	Am't of registers and receivers' commissions.	Aggregate of \$5 and \$10 payments & commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
								\$500 00
44, 447. 07	\$2, 795 00	\$1, 123 14	\$3, 918 14	54, 482. 64	\$15, 339 49			980 64
4, 454. 33	445 00	418 50	863 50	13, 067. 72	15, 343 50			804 94
80. 00	10 00	6 00	16 00	160. 00	200 00			729 00
				889. 00	1, 265 00			913 37
4, 534. 33	455 00	424 50	879 50	14, 107. 72	16, 808 50			2, 447 31
5, 911. 66	395 00	235 50	630 50	11, 220. 10	7, 030 66			865 36
								611 76
5, 911. 66	395 00	235 50	630 50	11, 220. 10	7, 030 66			1, 477 12
4, 274 28	270 00	162 00	432 00	9, 567. 59	7, 095 32			1, 063 50
								250 00
96, 764. 65	8, 300 00	3, 631 33	11, 931 33	148, 402. 91	72, 898 65			1, 993 29

JOS. S. WILSON, *Commissioner*.

No. 3.—Statement of public lands sold, of cash and bounty land scrip received therefor.  
RECAPIT

States and Territories.	Quantity sold for cash and bounty-land scrip at and above the minimum price of \$1 25, and amount received for the same, for the second half of the fiscal year ending June 30, 1869.		Exhibit of the amount paid for in cash and bounty-land scrip, respectively, for the second half of the fiscal year ending June 30, 1869, mentioned in first column.	
	Acres.	Amount.	Cash.	Military scrip.
Ohio.....	360. 00	\$1, 042 00	\$1, 042 00	.....
Indiana.....	.....	.....	.....	.....
Illinois.....	656. 86	1, 069 71	1, 069 71	.....
Missouri.....	18, 282. 98	23, 203 66	27, 622 11	\$586 55
Alabama.....	686. 33	1, 338 05	1, 338 05	.....
Mississippi.....	Excess pay'ts	146 69	146 69	.....
Louisiana.....	39. 96	613 40	613 40	.....
Michigan.....	41, 313. 12	84, 910 45	82, 502 08	2, 408 37
Arkansas.....	67. 54	377 47	277 47	100 00
Florida.....	Excess pay'ts	1, 061 48	1, 061 48	.....
Iowa.....	159, 754. 92	325, 252 14	325, 052 75	199 39
Wisconsin.....	151, 288. 08	236, 785 10	235, 645 99	1, 139 11
California.....	1, 074, 267. 31	1, 362, 295 38	1, 362, 295 38	.....
Nevada.....	.....	.....	.....	.....
Washington Territory.....	68, 962. 45	86, 203 05	86, 203 05	.....
Minnesota.....	78, 039. 78	124, 289 00	124, 289 00	.....
Oregon.....	16, 902. 31	21, 301 24	21, 301 24	.....
Kansas.....	33, 724. 18	45, 799 94	45, 799 94	.....
Nebraska.....	133, 521. 09	187, 026 18	187, 026 18	.....
New Mexico Territory.....	.....	.....	.....	.....
Dakota Territory.....	10, 035. 57	12, 544 49	12, 544 49	.....
Colorado Territory.....	9, 573. 39	16, 353 50	16, 353 50	.....
Idaho Territory.....	5, 308. 44	6, 635 66	6, 635 66	.....
Montana Territory.....	5, 293. 31	6, 825 32	6, 825 32	.....
Arizona Territory.....	.....	.....	.....	.....
Utah Territory.....	51, 638. 26	64, 598 65	64, 598 65	.....
Wyoming Territory.....	.....	.....	.....	.....
Total.....	1, 859, 715. 88	2, 614, 677 56	2, 610, 244 14	4, 433 42

To which add number of acres located with agricultural scrip, and commissions thereon...  
Also, commissions received on homestead entries, as shown in column No. 3 of section 3....

number of acres entered under the homestead law of May 20, 1862, &c.—Continued.

ULATION.

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts; and also with aggregate of commissions of registers and receivers under section 6 of said acts, and of act approved March 21, 1864, amendatory thereof, for the second half of the fiscal year ending June 30, 1869.				Aggregate disposed of for cash; also bounty land scrip and cash, under the homestead act of 1862 and acts amendatory.		Quantity of land located in second half of fiscal year with scrip issued under the agricultural college and mechanic act of July 2, 1862, and registers' and receivers' commissions on the value of land located.		Incidental expenses.
Area of homestead entries, in acres.	Aggregate of \$5 and \$10 payments.	Am't of registers and receivers' commissions.	Aggregate of \$5 and \$10 payments & commissions.	Acres.	Amount.	Acres.	Amount.	
360.00	\$45 00	\$18 00	\$63 00	720.00	\$1,087 00	.....	.....	\$672 33
.....	.....	.....	.....	656.86	1,069 71	.....	.....	361 11
167,978.84	13,345 00	4,904 45	18,249 45	186,261.82	41,553 66	1,600.00	\$36 00	2,844 04
113,761.03	11,625 00	3,338 14	14,963 14	114,447.36	12,963 05	.....	.....	772 17
43,306.78	3,359 00	1,213 10	4,563 10	43,306.78	3,496 69	.....	.....	2,960 81
43,579.00	2,805 00	1,122 00	3,927 00	42,618.96	3,418 40	.....	.....	1,013 97
69,773.15	6,220 00	2,692 94	8,912 94	111,086.27	91,130 45	.....	.....	1,646 51
142,538.98	11,190 00	3,844 43	15,034 43	142,606.52	11,567 47	.....	.....	5,808 60
40,970.59	3,005 00	1,182 00	4,187 00	40,970.59	4,066 48	.....	.....	1,898 77
119,730.68	12,820 00	5,234 60	18,054 60	279,485.60	338,072 14	45,596.06	1,116 00	658 34
75,076.25	6,000 00	2,348 39	8,348 39	226,364.33	242,785 10	.....	.....	4,649 10
25,252.14	1,820 00	1,250 12	3,070 12	1,099,519.45	1,364,115 38	18,273.13	456 00	6,931 86
.....	.....	.....	.....	.....	.....	.....	.....	16,439 40
28,349.01	1,800 00	1,193 44	2,993 44	97,311.46	83,003 05	3,038.75	72 00	1,000 60
182,969.39	16,595 00	7,456 11	24,051 11	261,009.17	140,884 00	14,995.49	386 00	3,371 27
34,829.50	2,410 00	1,475 66	3,885 66	51,731.81	23,711 24	4,295.20	108 00	6,449 39
131,125.09	10,475 00	4,275 06	14,750 06	164,849.27	56,274 94	7,647.37	192 00	2,849 49
244,105.19	22,800 00	9,241 21	32,041 21	377,626.28	209,826 18	6,720.00	168 00	2,854 21
.....	.....	.....	.....	.....	.....	.....	.....	6,531 72
44,447.07	2,795 00	1,123 14	3,918 14	54,482.64	15,339 49	.....	.....	500 00
4,534.33	455 00	424 50	879 50	14,107.72	16,808 50	.....	.....	980 64
5,911.66	395 00	235 50	630 50	11,220.10	7,030 66	.....	.....	2,447 31
4,274.28	270 00	162 00	432 00	9,567.59	7,095 32	.....	.....	1,477 12
.....	.....	.....	.....	.....	.....	.....	.....	1,063 50
96,764.65	8,300 00	3,631 33	11,931 33	148,402.91	72,893 65	.....	.....	250 00
.....	.....	.....	.....	.....	.....	.....	.....	1,993 29
1,618,637.61	138,520 00	56,366 12	194,886 12	3,478,353.49	2,753,197 56	102,166.00	2,534 00	78,425 55
.....	.....	.....	.....	102,166 00	2,534 00	.....	.....	.....
.....	.....	.....	.....	.....	56,366 12	.....	.....	.....
.....	.....	.....	.....	3,580,519 49	2,812,097 68	.....	.....	.....

JOS. S. WILSON, *Commissioner*.



No. 4.—*Summary for the fiscal year ending June 30, 1869, showing the number of acres dis-  
March 21, 1864, and June 21, 1866, with aggregate of \$5 and \$10 homestead payments and  
of July 2, 1862.*

States and Territories.	Quantity sold for cash and bounty-land scrip at and above the minimum price of \$1 25, and amount re- ceived for the same, for the fiscal year ending June 30, 1869.		Exhibit of the amount paid in cash and in bounty-land scrip, re- spectively, for the fiscal year ending June 30, 1869, mentioned in first column.	
	Acres.	Amount.	Cash.	Military scrip.
Ohio.....	562.20	\$1,382 50	\$1,382 50	.....
Indiana.....	.....	.....	.....	.....
Illinois.....	1,455.06	2,450 08	2,450 08	.....
Missouri.....	34,398.06	51,867 18	51,180 63	\$686 55
Alabama.....	686.33	1,616 03	1,616 03	.....
Mississippi.....	Excess pay'ts	206 42	206 42	.....
Louisiana.....	39.96	892 68	892 68	.....
Michigan.....	116,298.75	228,526 28	211,615 93	16,910 35
Arkansas.....	67.54	440 38	340 38	100 00
Florida.....	Excess pay'ts	1,440 74	1,440 74	.....
Iowa.....	186,517.85	376,852 33	376,452 94	399 39
Wisconsin.....	224,460.39	346,322 13	342,204 36	4,117 77
California.....	1,726,794.39	2,198,661 96	2,198,661 96	.....
Nevada.....	1,661.01	2,232 33	2,232 33	.....
Washington Territory.....	122,234.88	152,793 58	152,793 58	.....
Minnesota.....	128,569.92	204,630 35	204,630 35	.....
Oregon.....	32,838.52	41,437 59	41,437 59	.....
Kansas.....	40,053.41	55,139 86	55,077 36	62 50
Nebraska.....	186,214.65	262,476 98	262,251 98	225 00
New Mexico Territory.....	480.00	600 00	600 00	.....
Dakota Territory.....	14,566.57	18,208 31	18,208 31	.....
Colorado Territory.....	13,310.44	21,152 15	21,152 15	.....
Idaho Territory.....	7,486.08	9,357 75	9,357 75	.....
Montana Territory.....	9,300.03	11,911 09	11,911 09	.....
Arizona Territory.....	.....	.....	.....	.....
Utah Territory.....	51,638.26	64,598 65	64,598 65	.....
Wyoming Territory.....	.....	.....	.....	.....
Total.....	2,899,544.30	4,055,197 35	4,032,940 79	22,501 56
To which add number of acres located with agricultural scrip and commissions Also, commissions received on homestead entries, as shown under head of com				

posed of for cash, with bounty land scrip, by entry under the homestead laws of May 20, 1862, homestead commissions; also, locations with agricultural college and mechanic scrip, under act

Quantity of land entered under homestead acts of May 20, 1862, and June 21, 1866, with aggregate of \$5 and \$10 payments required by section 2 of the acts, and also with aggregate of commissions of registers and receivers, under section 6 of said acts, and of act approved March 21, 1864, amendatory thereof, for the fiscal year ending June 30, 1869.				Aggregate disposed of for cash; also bounty land scrip, and cash under the homestead act of 1862, and acts amendatory.		Quantity of land located in the fiscal year with scrip issued under agricultural college & mechanic act of July 2, 1862, & registers' and receivers' commissions on value of land located.		Incidental expenses.
Aggregate of acres in homestead entries.	Aggregate of \$5 and \$10 payments.	Am't of registers' and receivers' commissions.	Aggregate of \$5 and \$10 fees and commissions.	Acres.	Amount.	Acres.	Amount.	Amount.
930.81	\$105 00	\$36 26	\$141 26	1,493.01	\$1,487 50			\$1,294 51
								611 11
				1,455.06	2,450 08			1,535 17
258,966.34	21,060 00	7,722 05	28,782 05	293,364.40	72,927 18	5,123.88	\$124 00	5,439 65
209,004.44	14,180 00	6,002 60	20,182 60	209,690.77	15,796 03			4,336 71
78,810.04	5,865 00	2,191 41	8,056 41	78,810.04	6,071 42			1,515 15
63,003.21	3,665 00	1,668 68	5,333 68	63,043.17	4,557 68			3,135 09
158,795.88	14,930 00	6,058 08	20,988 08	275,004.63	243,456 28			13,824 89
196,418.86	14,295 00	5,508 98	19,803 98	196,486.40	14,735 38			4,115 66
75,270.87	5,500 00	2,194 00	7,694 00	75,270.87	6,940 74			1,158 90
161,630.73	17,225 00	6,958 53	24,183 53	348,148.58	394,077 33	76,956.06	1,900 00	8,428 35
160,565.66	12,725 00	4,825 64	17,550 64	385,026.05	359,047 13			12,939 96
59,666.26	4,275 00	2,709 54	6,984 54	1,786,460.65	2,202,936 96	158,208.11	4,036 00	32,381 11
2,380.01	150 00	90 00	240 00	4,041.22	2,382 33			2,627 58
45,567.45	2,895 00	1,837 02	4,732 02	167,802.33	155,688 58	6,078.75	148 00	6,726 20
389,331.87	32,635 00	13,692 43	46,327 43	517,901.79	237,265 35	36,115.49	914 00	11,857 58
68,896.04	4,625 00	2,753 22	7,378 22	101,734.56	46,062 59	6,695.20	168 00	6,418 56
228,137.21	18,305 00	7,328 19	25,633 19	268,190.62	73,444 86	16,767.37	420 00	4,935 55
380,089.29	35,329 00	14,176 07	49,496 07	566,303.94	297,796 98	46,720.00	1,168 00	10,523 36
480.00	30 00	18 00	48 00		960 00			1,638 55
81,242.05	5,125 00	2,043 00	7,168 00	95,808.62	23,333 31			1,664 81
6,609.49	670 00	551 92	1,221 92	19,919.93	21,822 15			6,439 69
7,171.61	485 00	289 50	774 50	14,657.69	9,842 75			3,972 02
7,632.28	480 00	288 00	768 00	16,932.31	12,391 09			2,442 20
								330 16
96,764.65	8,300 00	3,631 33	11,931 33	148,402 91	72,898 65			2,313 94
2,737,365 05	222,845 00	92,574 45	315,419 45	5,636,909.35	4,278,042 35	352,664.86	8,878 00	152,606 46
received thereon				352,664.86	8,878 00			
missions of registers and receivers.					92,574 45			
				5,989,574.21	4,379,494 80			

JOS. S. WILSON, *Commissioner.*

## SWAMP LANDS.

No. 5.—Statement exhibiting the quantity of lands selected for the several States under acts of Congress approved March 2, 1849, September 28, 1850, and March 12, 1860, up to, and ending, September 30, 1869.

States.	4th quarter, 1868.	1st quarter, 1869.	2d quarter, 1869.	3d quarter, 1869.	Year ending June 30, 1869.	Total since date of grant.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Ohio .....						54,438.14
Indiana .....						1,354,732.50
Illinois .....						3,267,470.65
Missouri .....						4,604,448.75
Alabama .....						479,514.44
Mississippi .....						3,070,645.29
Louisiana (act of 1849) .....						10,774,978.82
Louisiana (act of 1850) .....						543,339.13
Michigan .....						7,273,724.72
Arkansas .....						8,652,432.93
Florida .....						11,790,637.46
Wisconsin .....						4,200,669.58
Iowa .....						2,583,509.72
California .....	3,199.84	2,355.68	18,642.77		24,198.29	913,884.83
Oregon .....						
Minnesota .....						753,160.00
Total .....	3,199.84	2,355.68	18,642.77		24,198.29	60,317,586.96

No. 6.—Statement exhibiting the quantity of land approved to the several States under the acts of Congress approved March 2, 1849, September 28, 1850, and March 12, 1860, up to, and ending, September 30, 1869.

States.	4th quarter, 1868.	1st quarter, 1869.	2d quarter, 1869.	3d quarter, 1869.	Year ending June 30, 1869.	Total since date of grant.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Ohio .....						25,640.71
Indiana .....						1,263,733.28
Illinois .....		11.94			11.94	1,489,040.01
Missouri .....		40.00	177.64	80.00	217.64	4,330,837.99
Alabama .....				114,231.46		116,826.97
Mississippi .....						3,068,642.31
Louisiana (act of 1849) .....						8,192,305.64
Louisiana (act of 1850) .....						237,949.09
Michigan .....			160.00		160.00	5,691,758.66
Arkansas .....						7,283,763.13
Florida .....						10,901,007.76
Wisconsin .....			5,609.78		5,609.78	3,029,738.55
Iowa .....	520.00	11,346.33	7,168.48	453.40	19,034.81	864,302.40
California .....	14,397.53	387,850.01	21,112.77	143.00	426,261.13	769,573.15
Oregon .....						
Minnesota .....						725,034.13
Total .....	14,917.53	399,248.28	34,228.67	114,907.86	451,295.30	47,990,153.78



No. 7.—*Statement exhibiting the quantity of land patented to the several States under the acts of Congress approved September 28, 1850, and March 12, 1860, and also the quantity certified to the State of Louisiana under act approved March 2, 1849.*

States.	4th quarter, 1868.	1st quarter, 1869.	2d quarter, 1869.	3d quarter, 1869.	Year ending June 30, 1869.	Total since date of grant.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Ohio .....						25,640.71
Indiana .....		80.00		41.00	80.00	*1,256,488.56
Illinois .....			291.94	75.10	291.94	1,448,537.02
Missouri .....		936.27		189.50	936.27	3,152,178.67
Alabama .....				114,231.46		114,231.46
Mississippi .....						2,681,383.16
Louisiana (act of 1849) .....						8,192,305.64
Louisiana (act of 1850) .....						199,598.07
Michigan .....			40.00	680.00	80.00	5,817,804.89
Arkansas .....						6,011,357.03
Florida .....						10,644,468.04
Wisconsin .....		4,667.57		5,246.48	4,667.57	12,972,770.56
Iowa .....	3,911.38	36,456.57	5,509.04	6,153.73	45,876.99	†1,116,048.84
California .....	2,900.82	14,397.53	3,955.68	402,920.38	21,254.03	626,952.00
Minnesota .....						717,383.57
Total .....	6,812.20	56,537.94	9,796.66	529,537.65	73,186.80	44,977,148.31

\* 4,880.20 acres of this contained in indemnity patents under act of March 2, 1855.

† 39,910.75 acres of this contained in indemnity patents under act of March 2, 1855.

‡ 318,322.94 acres of this contained in indemnity patents under act of March 2, 1855.

No. 8.—*Statement showing the condition of the State selections under the act of September 4, 1841, on the 30th day of June, 1869.*

States.	Number of acres to which each State was entitled un- der the 8th section of the act of Sep- tember 4, 1841.	Number of acres ap- proved up to June 30, 1869.	Number of acres re- maining to each State to be select- ed on the 1st of July, 1869.
Illinois .....	209,085.50	*209,060.05	25.45
Missouri .....	500,000.00	500,000.00	.....
Alabama .....	97,469.17	*97,469.17	.....
Mississippi .....	500,000.00	500,000.00	.....
Louisiana .....	500,000.00	482,166.97	17,833.03
Michigan .....	500,000.00	498,638.54	1,361.46
Arkansas .....	500,000.00	499,880.03	119.97
Florida .....	499,990.00	450,823.82	49,166.18
Iowa .....	500,000.00	500,000.00	.....
Wisconsin .....	500,000.00	499,973.87	26.13
California .....	500,000.00	221,706.89	278,293.11
Kansas .....	500,000.00	495,552.20	4,447.80
Minnesota .....	500,000.00	483,822.60	16,177.40
Oregon .....	500,000.00	299,876.28	200,123.72
Nevada .....	500,000.00	.....	500,000.00
Nebraska .....	500,000.00	.....	500,000.00
Total .....	7,306,544.67	5,738,970.42	1,567,574.25

\* The States of Illinois and Alabama received grants under prior acts, which the quantities here given make up the quantity of 500,000 acres.

JOS. S. WILSON, *Commissioner.*

DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*

No. 9.—*Condition of bounty land business under acts of 1847, 1850, 1852, and 1855, showing the issues and locations from the commencement of operations under said acts to June 30, 1869.*

Grade of warrants.	Number issued.	Acres embraced thereby.	Number located.	Acres embraced thereby.	No. outstanding.	Acres embraced thereby.
<i>Act of 1847.</i>						
One hundred and sixty acres.....	80,642	12,902,720	78,523	12,563,680	2,119	339,040
Forty acres.....	7,582	303,280	7,010	280,400	572	22,880
Total.....	88,224	13,206,000	85,533	12,844,080	2,691	361,920
<i>Act of 1850.</i>						
One hundred and sixty acres.....	27,437	4,389,920	26,531	4,244,960	906	144,960
Eighty acres.....	57,707	4,616,560	55,624	4,449,920	2,083	166,640
Forty acres.....	103,962	4,158,480	99,649	3,985,960	4,313	172,520
Total.....	189,106	13,164,960	181,804	12,680,840	7,202	484,120
<i>Act of 1852.</i>						
One hundred and sixty acres.....	1,222	195,520	1,182	189,120	40	6,400
Eighty acres.....	1,698	135,840	1,645	131,600	53	4,240
Forty acres.....	9,063	362,520	8,844	353,760	219	8,760
Total.....	11,983	693,880	11,671	674,480	312	19,400
<i>Act of 1855.</i>						
One hundred and sixty acres.....	108,381	17,340,960	98,045	15,687,200	10,336	1,653,760
One hundred and twenty acres.....	96,654	11,598,480	87,519	10,502,080	9,135	1,096,400
One hundred acres.....	6	600	5	500	1	100
Eighty acres.....	49,286	3,942,880	46,256	3,700,480	3,030	242,400
Sixty acres.....	358	21,480	288	17,280	70	4,200
Forty acres.....	532	21,280	443	17,720	89	3,560
Ten acres.....	5	50	3	30	2	20
Total.....	255,222	32,925,730	232,559	29,925,290	22,663	3,000,440
<i>Summary.</i>						
Act of 1847.....	88,224	13,206,000	85,533	12,844,080	2,691	361,920
Act of 1850.....	189,106	13,164,960	181,804	12,680,840	7,302	484,120
Act of 1852.....	11,983	693,880	11,671	674,480	312	19,400
Act of 1855.....	255,222	32,925,730	232,559	29,925,290	22,663	3,000,440
Total.....	544,535	59,990,570	511,567	56,124,690	32,968	3,865,880

JOS. S. WILSON, *Commissioner.*

DEPARTMENT OF THE INTERIOR,  
General Land Office, November 1, 1869.

No. 10.—*Agricultural selections within certain States, and also scrip locations under agricultural and mechanic act of July 2, 1862, and supplements of April 14, 1864, and July 23, 1866.*

Land districts.	Quantity selected to June 30, 1869.	Quantity located to June 30, 1869.	Quantity located in July and August, 1869.
MINNESOTA.			
Taylor's Falls .....		2 397. 36	1, 160. 00
St. Cloud .....		19, 040. 00	160. 00
Winnebago City .....			
St. Peter .....			
Greenleaf .....		9, 738. 86	
Du Luth .....		2, 560. 00	2, 235. 29
Alexandria .....		2, 379. 27	320. 00
Total .....		36, 115. 49	3, 875. 29
WISCONSIN.			
Menasha .....			
Falls of St. Croix .....			
Stevens Point .....			
La Crosse .....			
Bayfield .....			
Eau Claire .....			
Total .....			
KANSAS.			
Topeka .....		330. 00	
Junction City .....		8, 447. 37	4, 959. 01
Humboldt .....		8, 000. 00	
Total .....		16, 767. 37	4, 959. 01
NEBRASKA.			
West Point .....		7, 680. 00	
Beatrice .....		640. 00	
Lincoln .....		11, 680. 00	
Dakota City .....		26, 730. 00	1, 440. 00
Total .....		46, 730. 00	1, 440. 00
MISSOURI.			
Boonville .....		16, 566. 58	480. 00
Ironton .....		5, 064. 66	
Springfield .....		11, 342. 38	
Total .....		32, 973. 62	480. 00
MICHIGAN.			
Detroit .....			
East Saginaw .....			
Ionia .....			
Marquette .....			
Traverse City .....			
Total .....			
IOWA.			
Fort Des Moines .....			
Council Bluffs .....			
Fort Dodge .....		1, 120. 00	
Sioux City .....		75, 836. 66	13, 365. 25
Total .....		76, 956. 66	13, 365. 25



Land districts.	Quantity selected to June 30, 1869.	Quantity located to June 30, 1869.	Quantity located in July and August, 1869.
OREGON.			
Oregon City .....			
Roseburg .....	62,352.18	6,695.20	
Le Grand .....			
Total .....	62,352.18	6,695.20	
CALIFORNIA.			
San Francisco .....		15,211.26	9,293.82
Marysville .....			
Humboldt .....		1,760.00	
Stockton .....		82,494.98	320.00
Visalia .....		53,741.87	
Sacramento .....			
Total .....		158,208.11	9,613.82
WASHINGTON TERRITORY.			
Olympia .....		3,678.75	
Vancouver .....		2,400.00	
Total .....		6,078.75	
RECAPITULATION.			
Minnesota .....		36,115.49	3,875.29
Wisconsin .....			
Kansas .....		16,767.37	4,959.01
Nebraska .....		46,720.00	1,440.00
Missouri .....		32,973.62	480.00
Michigan .....			
Iowa .....		76,956.06	13,365.25
Oregon .....	62,352.18	6,695.20	
California .....		158,208.11	9,613.82
Washington Territory .....		6,078.75	
Total .....	62,352.18	380,514.60	33,733.37

JOS. S. WILSON, *Commissioner.*DEPARTMENT OF THE INTERIOR.  
*General Land Office, November 1, 1869.*

No. 11.—Statement exhibiting land concessions by acts of Congress to States and corporations, for railroad and military wagon-road purposes, from the year 1850 to June 30, 1869.

States.	Date of laws.	Statutes.	Page.	Name of road.	Mile limits.	Number of acres certified, up to June 30, 1868.	Number of acres certified for the year ending June 30, 1869.	Estimated quantities including under the grants.
Illinois.	Sept. 20, 1850	9	466	Illinois Central.....	6 and 15	2,595,053.00	.....	2,595,053.00
Do.	Sept. 20, 1850	9	466	Mobile and Ohio River.....	6 and 15	737,130.29	.....	1,004,040.00
Mississippi.	Sept. 20, 1850	9	466	Southern railroad.....	6 and 15	171,559.00	.....	404,800.00
Do.	Aug. 11, 1856	11	30	Gulf and Ship Island railroad.....	6 and 15	.....	.....	632,800.00
Alabama.	Sept. 20, 1850	9	466	Mobile and Ohio River.....	6 and 15	419,528.44	.....	230,400.00
Do.	May 17, 1856	11	15	Alabama and Florida.....	6 and 15	394,522.99	.....	419,520.00
Do.	May 17, 1856	11	15	Alabama and Tennessee.....	6 and 15	440,700.16	.....	481,920.00
Do.	June 3, 1856	11	17	Northeastern and Southwestern.....	6 and 15	289,535.58	.....	691,840.00
Do.	Apr. 10, 1869	.....	.....	Revolving act.....	.....	.....	.....	.....
Do.	June 3, 1856	11	17	Wills Valley.....	6 and 15	171,920.51	.....	206,080.00
Do.	.....	.....	.....	Consolidated and known as Alabama and Chattanooga railroad.	.....	.....	.....	.....
Do.	June 3, 1856	11	17	Coosa and Tennessee.....	6 and 15	67,784.96	.....	132,480.00
Do.	June 3, 1856	11	17	Mobile and Girard.....	6 and 15	504,143.86	.....	840,880.00
Do.	June 3, 1856	11	17	Coosa and Chattooga.....	6 and 15	.....	.....	150,000.00
Do.	June 3, 1856	11	17	Tennessee and Alabama Central.....	6 and 15	.....	.....	576,000.00
*Florida.	May 17, 1856	11	13	Florida railroad.....	6 and 15	281,981.17	.....	442,542.14
Do.	May 17, 1856	11	13	Alabama and Florida.....	6 and 15	165,688.00	.....	165,688.00
Do.	May 17, 1856	11	15	Florida, Atlantic and Gulf Central.....	6 and 15	1,275,212.93	.....	1,508,729.87
Do.	May 17, 1856	11	15	Vicksburg and Shreveport.....	6 and 15	37,583.29	.....	183,153.99
*Louisiana.	June 3, 1856	11	18	New Orleans, Opelousas and Great Western.....	6 and 15	353,211.70	.....	610,880.00
Do.	June 3, 1856	11	18	Memphis and Little Rock.....	6 and 15	719,193.75	.....	907,840.00
Arkansas.	Feb. 9, 1853	10	155	Memphis and Little Rock.....	6 and 15	127,238.51	.....	438,646.89
Do.	July 28, 1866	14	338	Cairo and Fulton.....	Additional	.....	5	365,533.00
Do.	Feb. 9, 1853	10	155	Cairo and Fulton.....	6 and 15	1,115,408.41	.....	1,109,067.00
Do.	Feb. 9, 1853	10	155	Little Rock and Fort Smith.....	Additional	.....	5	966,723.00
Do.	Feb. 9, 1853	10	155	Little Rock and Fort Smith.....	6 and 15	550,520.18	.....	550,525.34
Do.	July 28, 1866	14	338	An act to extend the time for completion of first twenty miles	Additional	.....	5	488,771.00
Do.	July 4, 1866	14	83	Iron Mountain railroad.....	10 and 20	.....	.....	864,000.00
Missouri.	June 10, 1852	10	8	Hannibal and St. Joseph.....	6 and 15	493,821.35	.....	781,944.83
Do.	June 10, 1852	10	8	Pacific and Southwestern Branch.....	6 and 15	1,138,073.54	.....	1,101,335.07
Do.	Feb. 9, 1853	10	155	Cairo and Fulton.....	6 and 15	63,540.11	.....	249,262.31

\* Grants to Mississippi, Alabama, Florida, and Louisiana, under acts of May 17, June 3, and August 11, 1856, having expired, application will be made to Congress to extend the time for the completion of the railroads in said States.

## No. 11.—Statement exhibiting land concessions by acts of Congress to States and corporations, &amp;c.—Continued.

States.	Date of laws.	Statutes.	Page.	Name of road.	Mile limits.	Number of acres certified under the grants, up to June 30, 1868.	Number of acres certified for the year ending June 30, 1869.	Estimated quantities inuring under the grants.
Missouri.....	July 28, 1866	14	338	Cairo and Fulton.	Additional 10 and 20 6 and 15	5	.....	182,718.00
Do.....	July 4, 1866	14	83	Iron Mountain (from Pilot Knob to Helena, Ark.)	.....	.....	.....	1,400,000.00
Iowa.....	May 15, 1856	11	9	Burlington and Missouri River.	.....	287,046.34	3,813.73	948,643.66
Do.....	June 2, 1864	13	95	Time extended for completion of road.	.....	.....	95,505.29	101,116.67
Do.....	Feb. 10, 1866	14	349	Mississippi and Missouri.	6 and 15	451,774.36	.....	1,144,904.90
Do.....	May 2, 1864	13	95	Mississippi and Missouri.	.....	.....	.....	116,276.70
Do.....	May 13, 1856	11	9	Cedar Rapids and Missouri River.	6 and 15	775,717.67	3,151.50	1,298,739.00
Do.....	June 2, 1864	13	95	Cedar Rapids and Missouri River.	.....	.....	342,406.68	123,370.00
Do.....	June 13, 1856	13	9	Dubuque and Sioux City.	6 and 15	1,226,163.89	.....	1,226,163.05
Do.....	June 2, 1864	13	98	Authorized change of route from Ft. Dodge to Sioux City.	.....	.....	.....	1,536,000.00
Do.....	Mar. 2, 1868	13	.....	Time of completion of road extended to Jan. 1, 1872.	10 and 20 10 and 20	.....	.....	256,000.00
Do.....	May 12, 1864	13	72	McGregor and Sioux City.	.....	.....	.....	380,000.00
Do.....	May 12, 1864	13	72	Sioux City and St. Paul.	10 10	.....	.....	312,384.32
Do.....	July 2, 1864	13	363	Sioux City and Pacific.	6 and 15 6 and 15	6,458.68 30,998.75	.....	355,420.19
Michigan	June 3, 1856	11	21	Port Huron and Milwaukee.	.....	.....	.....	1,052,469.19
Do.....	June 3, 1856	11	21	Detroit and Milwaukee.	.....	.....	.....	.....
Do.....	June 3, 1856	11	21	Jackson, Lansing and Saginaw (formerly Amboy, Lansing and Traverse Bay).	6 and 15	719,386.23	2,083.02	.....
Do.....	July 3, 1866	14	78	Time extended seven years.	.....	.....	.....	556,823.73
Do.....	Mar. 3, 1867	14	425	Time extended for completion of first twenty miles.	.....	.....	.....	629,182.62
Do.....	June 3, 1856	11	21	Flint and Pere Marquette.	6 and 15	511,425.90	.....	531,200.00
Do.....	July 3, 1866	14	78	An act to change the western terminus of road.	6 and 15	629,182.32	.....	218,880.87
Do.....	June 3, 1856	11	21	Grand Rapids and Indiana.	.....	.....	.....	128,000.00
Do.....	June 7, 1864	13	119	Grand Rapids and Indiana (from Ft. Wayne to Grand Rapids).	6 and 15	218,881.10	.....	309,315.24
Do.....	June 3, 1856	11	21	Bay de Noquet and Marquette.	.....	.....	.....	243,200.00
Do.....	June 3, 1856	11	21	Bay de Noquet and Marquette.	.....	.....	.....	.....
Do.....	Mar. 3, 1865	13	521	Marquette and Ontonagon.	6 and 15	216,919.19	.....	.....
Do.....	June 3, 1856	11	21	Marquette and Ontonagon.	.....	46,086.45	.....	.....
Do.....	Mar. 3, 1865	13	521	Concerning certain lands granted to Marquette and Ontonagon railroad by act of 3d March, 1865.	.....	.....	.....	208,062.59
Do.....	May 20, 1868	Joint resolution	.....	.....	.....	.....	.....	188,507.24
Do.....	June 3, 1856	11	21	Chicago, St. Paul and Fond du Lac (branch to Ontonagon).	6 and 15 6 and 15	174,020.41 162,044.46	.....	375,650.00
Do.....	June 3, 1856	11	21	Chicago, St. Paul and Fond du Lac (branch to Marquette).	.....	.....	.....	188,800.00
Do.....	July 3, 1862	12	630	Chicago and Northwestern.	Additional 6 and 15	.....	.....	894,907.81
Do.....	Mar. 3, 1865	13	521	Chicago and Northwestern.	.....	.....	.....	.....
Do.....	June 3, 1856	11	21	Tonah and Lake Superior.	10 and 20	324,943.38	.....	675,000.00
Wisconsin	May 5, 1864	13	66	.....	.....	.....	.....	.....



Do.....	June 3, 1856	11	21	St. Croix and Lake Superior.....	6 and 15	.....	524, 718. 15	524, 714. 95
Do.....	May 5, 1864	13	66	St. Croix and Lake Superior.....	6 and 15	.....	.....	330, 000. 00
Do.....	June 3, 1856	11	21	Branch to Bayfield.....	6 and 15	.....	318, 745. 80	318, 737. 74
Do.....	May 5, 1864	13	66	Branch to Bayfield.....	6 and 15	.....	.....	215, 000. 00
Do.....	June 3, 1856	11	21	Chicago and Northwestern.....	6 and 15	.....	211, 143. 02	200, 000. 00
Do (Res.)	Apr. 23, 1862	12	66	Changes line of route.....	6 and 15	.....	100, 164. 70	1, 800, 000. 00
Do.....	May 5, 1864	13	66	From Portage City, Berlin, Dofy's Island, or Fond du Lac, in a northwestern direction to Bayfield, and thence to Superior. Resolution explanatory of and in addition to the act of May 5, 1864.	6 and 15	.....	.....	.....
Do.....	June 21, 1866	14	361	St. Paul and Pacific.....	6 and 15	.....	406, 566. 14	660, 000. 00
Minnesota	Mar. 3, 1857	11	195	St. Paul and Pacific.....	6 and 15	.....	.....	500, 000. 00
Do.....	Mar. 3, 1865	13	526	Branch St. Paul and Pacific.....	6 and 15	.....	438, 075. 38	750, 000. 00
Do.....	Mar. 3, 1865	13	526	Branch St. Paul and Pacific.....	6 and 15	.....	.....	725, 000. 00
Do.....	July 12, 1869	12	624	Authorized change of route.....	6 and 15	.....	174, 498. 91	333, 403. 09
Do.....	Mar. 3, 1857	11	195	Minnesota Central.....	6 and 15	.....	.....	200, 000. 00
Do.....	Mar. 3, 1865	13	526	Winona and St. Peter.....	6 and 15	.....	342, 376. 51	720, 000. 00
Do.....	Mar. 3, 1857	11	195	Winona and St. Peter.....	6 and 15	.....	.....	690, 000. 00
Do.....	Mar. 3, 1865	13	526	Minnesota Valley.....	6 and 15	.....	711, 242. 57	860, 000. 00
Do.....	May 12, 1864	13	74	Thine extended for completion of road seven years.....	6 and 15	.....	.....	150, 000. 00
Do.....	July 13, 1866	14	97	Lake Superior and Mississippi.....	6 and 15	.....	.....	800, 000. 00
Do.....	May 5, 1864	13	64	Authorized to make up deficiency within thirty miles of the west line of said road.....	6 and 15	.....	115, 544. 79	133, 498. 40
Do.....	July 13, 1866	14	93	Minnesota Southern.....	6 and 15	.....	63, 393. 82	735, 000. 00
Do.....	July 4, 1866	14	87	Hastings and Dakota River.....	6 and 15	.....	.....	550, 000. 00
Kansas	July 4, 1866	14	87	Leavenworth, Lawrence and Galveston.....	6 and 15	.....	.....	2, 500, 000. 00
Do.....	Mar. 3, 1863	12	772	Union Pacific Southern Branch.....	6 and 15	.....	.....	1, 700, 000. 00
Do.....	July 1, 1864	13	339	St. Joseph and Denver City.....	6 and 15	.....	.....	2, 350, 000. 00
Do.....	July 1, 1864	13	339	Kansas and Neosho Valley.....	6 and 15	.....	.....	1, 293, 000. 00
Do.....	July 23, 1866	14	210	Southern Branch of the Union Pacific railroad, from Fort Riley, Kansas, to Fort Smith, Arkansas.....	6 and 15	.....	.....	200, 000. 00
Do.....	July 25, 1863	14	236	Placerville and Sacramento Valley.....	6 and 15	.....	.....	1, 540, 000. 00
Do.....	July 26, 1863	14	239	California and Oregon.....	6 and 15	.....	.....	320, 000. 00
California	July 13, 1866	14	94	An act to amend the sixth section of the original act. Stockton and Copperopolis.....	6 and 15	.....	.....	1, 600, 000. 00
Do.....	July 23, 1866	14	239	Central Pacific railroad, with branch from Omaha, Neb., from Missouri River to Pacific Ocean.....	6 and 15	.....	.....	35, 000, 000. 00
Do.....	Apr. 10, 1869	12	47	Name of Union Pacific railroad changed to Kansas Pacific Railway Company.....	6 and 15	.....	164, 801. 48	.....
Do.....	July 1, 1862	12	489	Central Pacific to eastern boundary of California, thence meet Union Pacific, act 1864, page 363.....	6 and 15	.....	.....	.....
Oregon	Apr. 10, 1869	12	47	Union Pacific Railway Company (eastern division) to designate general route of road, &c., before 1st Dec., 1864. Granting Union Pacific Railroad Company right of way through military reserves.	6 and 15	.....	.....	.....
Do.....	July 23, 1866	14	239	.....	6 and 15	.....	.....	.....
Do.....	June 20, 1868	14	239	.....	6 and 15	.....	.....	.....
Corporations.	Apr. 10, 1869	12	47	.....	6 and 15	.....	.....	.....
Do.....	July 1, 1862	12	489	.....	6 and 15	.....	.....	.....
Do.....	Mar. 10, 1869	13	356	.....	6 and 15	.....	.....	.....
Do.....	July 2, 1864	13	79	.....	6 and 15	.....	.....	.....
Do.....	July 3, 1866	14	367	.....	6 and 15	.....	.....	.....
Do.....	July 26, 1866	14	367	.....	6 and 15	.....	.....	.....

No. 11.—Statement exhibiting land concessions by acts of Congress to States and corporations, &amp;c.—Continued.

States.	Date of laws.	Statutes.	Page.	Name of road.	Mile limits.	Number of acres certified under June 30, 1868.	Number of acres certified for the year ending June 30, 1869.	Estimated quantities inuring under the grants.
Corporations. (joint res.) Corporations.	May 21, 1866	14	356	To extend the time for the construction of the first section of the Western Pacific railroad.				
	Apr. 10, 1869	Pamph. Laws	56	Joint resolution "for the protection of the interests of the United States in the Union Pacific Railroad Company, the Central Pacific R. R. Company, and for other purposes."				
Do. ....	July 2, 1864	13	365	Northern Pacific railroad, (from Superior to Puget Sound)				
Do. (J. r.)	May 7, 1866	14	355	Extends the time for commencing and completing said road two years.				
Do. (J. r.)	Apr. 10, 1869	Pamph. Laws	57	Granting right of way for the construction of a railroad from a point at or near Portland, Oregon, to a point west of the Cascade Mountains in Washington Territory.	20 and 40			47,000,000.00
Do. ....	July 27, 1866	14	292	Atlantic and Pacific, from Springfield, Missouri, to the Pacific.	20 and 40			42,000,000.00
Wisconsin...	Mar. 3, 1863	12	797	From Fort Wilkins, Copper Harbor, Michigan, to Fort Howard, Green Bay, Wisconsin.				
Michigan ...	June 8, 1868			Time extended for completion of road to 1st March, 1870.	3 and 15	148,936.67	4,569.07	250,000.00
	Mar. 3, 1863	12	797	From Fort Wilkins, Copper Harbor, Michigan, to Fort Howard, Green Bay, Wisconsin.	3 and 15			221,013.27
Do. ....	June 8, 1868			Time extended for completion of road to 1st March, 1870.				
	June 20, 1864	13	140	From Saginaw City, Michigan, by the shortest and most feasible route to the Straits of Mackinaw.	6			1,497,600.00
Do. ....	June 20, 1864	13	140	From Grand Rapids through Newago, Traverse City, and Little Traverse to Straits of Mackinaw.				
Oregon. ....	July 2, 1864	13	355	From Eugene City, by way of Middle Fork of Willamette River, and the most feasible pass in the Cascade range of mountains, near Diamond Peak, to the eastern boundary of the State.	3	19,153.73		720,000.00
Do. ....	July 4, 1866	14	86	From Corvallis to the Aquina Bay.	3			76,800.00
Do. ....	July 5, 1866	14	89	From Albany, by way of Canyon City and the most feasible pass in the Cascade range, to the eastern boundary of the State.	3			460,000.00
Do. ....	Feb. 25, 1867	14	409	From Dallas City, on the Columbia River, to Fort Boise, on the Snake River.	3			556,800.00

No. 11.—*Statement exhibiting land concessions, &c.*—Continued.

## RECAPITULATION.

States.	Estimated number of acres granted for wagon roads.	Number of acres certified and patented under the grants.	Estimated number of acres inuring under the grants.
Illinois.....		2, 595, 053. 00	2, 595, 053. 00
Mississippi.....		908, 680. 29	2, 062, 240. 00
Alabama.....		2, 283, 138. 50	3, 729, 120. 00
Florida.....		1, 760, 463. 39	2, 360, 114. 00
Louisiana.....		1, 072, 405. 45	1, 578, 720. 00
Arkansas.....		1, 793, 167. 10	4, 744, 271. 63
Missouri.....		1, 715, 435. 00	3, 745, 160. 21
Iowa.....		3, 215, 669. 46	7, 331, 207. 98
Michigan.....		2, 717, 496. 51	5, 327, 930. 99
Wisconsin.....		1, 479, 710. 05	5, 378, 360. 50
Minnesota.....		2, 510, 283. 64	7, 783, 403. 09
Kansas.....			7, 753, 000. 00
California.....			2, 060, 000. 00
Oregon.....			1, 660, 000. 00
Corporations: Pacific railroads.....		22, 056, 507. 39	58, 108, 581. 40
Wagon roads: Wisconsin.....	250, 000. 00	164, 801. 48	124, 000, 000. 00
Michigan.....	1, 718, 613. 27	153, 505. 74	
Oregon.....	1, 813, 600. 00	19, 153. 73	3, 782, 213. 27
Total.....		22, 393, 968. 34	185, 890, 794. 67

JOS. S. WILSON, *Commissioner.*DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*No. 12.—*Statement exhibiting land concessions by acts of Congress to States for canal purposes from the year 1827 to June 30, 1869.*

States.	Date of laws.	Statutes.	Page.	Name of canal.	Total number of acres granted.
Indiana.....	Mar. 2, 1827	4	236	} Wabash and Erie canal.....	1, 439, 279
Do.....	Feb. 27, 1841	5	414		
Do.....	Mar. 3, 1845	5	731	} Wabash and Erie canal.....	266, 535
Ohio.....	Mar. 2, 1827	4	236		
Do.....	June 30, 1834	4	716	} Miami and Dayton canal.....	333, 826
Do.....	May 24, 1823	4	305		
Do.(sec.5)	May 24, 1823	4	306	General canal purposes.....	500, 000
Illinois.....	Mar. 2, 1827	4	234	Canal to connect the waters of the Illinois river with those of Lake Michigan.	290, 915
Wisconsin...	June 18, 1838	5	245	Milwaukee and Rock River canal.....	125, 431
Do.....	Apr. 10, 1866	14	30	Breakwater and harbor, and ship canal.....	200, 000
Michigan.....	Aug. 26, 1852	10	35	St. Mary ship canal.....	750, 000
Do.....	Mar. 3, 1865	13	519	Portage Lake and Lake Superior ship canal.....	200, 000
Do.....	July 3, 1866	14	81	Portage Lake and Lake Superior ship canal.....	200, 000
Do.....	July 3, 1866	14	80	Ship canal to connect the waters of Lake Superior with the lake known as Lac La Belle.	100, 000

## RECAPITULATION.

Indiana.....	1, 439, 279
Ohio.....	1, 100, 361
Illinois.....	290, 915
Wisconsin.....	325, 431
Michigan.....	1, 250, 000
Total quantity of acres granted.....	4, 405, 986

JOS. S. WILSON, *Commissioner.*DEPARTMENT OF THE INTERIOR,  
*General Land Office, November 1, 1869.*



No. 13.—*Estimates of appropriations required for the office of the Commissioner of the General Land Office for the fiscal year ending June 30, 1871.*

Heads or titles of appropriations.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of balances of appropriations unexpended June 30, 1870, which may in part be applied to the service of the next fiscal year.	Appropriations for the services of the fiscal year ending June 30, 1870.
For salary of Commissioner of the General Land Office, per act of July 4, 1836, (5 Laws, page 111, sec. 10).....	\$3,000		
For salary of recorder, per same act and act of March 3, 1837, (5 Laws, pages 111 and 164) .....	2,000		
For salary of chief clerk, per act of March 3, 1853, (10 Laws, page 211) ..	2,000		
For salary of three principal clerks of public lands, private land claims, and surveys, per act of July 4, 1836, at \$1,800 each, (5 Laws, page 111)	5,400		
For salary of three clerks of class four, per act of March 3, 1853, (10 Laws, page 211, sec. 3).....	5,400		
For salary of twenty-three clerks of class three, per same act and act of April 22, 1854, (10 Laws, pages 211, 276) .....	36,800		
For salary of forty clerks, class two, per same acts.....	56,000		
For salary of forty clerks, class one, per same acts.....	48,000		
For salary of draughtsman, at \$1,600, and assistant draughtsman, at \$1,400, per act of July 4, 1836, (5 Laws, page 112,) and act of April 22, 1854, (10 Laws, page 276).....	3,000		
For salary of five messengers; one chief messenger at \$1,000, and four assistant messengers at \$840 each, per act of July 4, 1836, joint resolution of August 18, 1856, and act of July 23, 1866, (Laws, page 207, sec. 7).....	4,360		
For salary of two packers, at \$720 each, per act of July 4, 1836, act of September 30, 1850, joint resolution of August 18, 1856, and act of July 23, 1866, (Laws, page 207, sec. 7) .....	1,440		
For salary of seven laborers, per joint resolution of August 18, 1856, (11 Laws, page 145,) act of June 23, 1860, act of June 25, 1864, (13 Laws, page 160,) and act of July 23, 1866, (Laws, page 207) .....	5,040		
For salary of seven night watchmen, per same resolution and same acts.....	5,040		
For salary of one day watchman, per act of June 2, 1858, act of June 25, 1864, and act of July 23, 1866, (Laws, page 207).....	720		
Total.....	178,200		\$178,200

*Estimates of appropriations under military act of March 3, 1855, and heretofore provided, per act of August 18, 1856, making appropriations, &c., and subsequent appropriation laws.*

Heads or titles of appropriations.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of balances of appropriations unexpended June 30, 1870, which may in part be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
For salary of one principal clerk, as director.....	\$2, 000		
For salary of one clerk of class three.....	1, 600		
For salary of four clerks of class two.....	5, 600		
For salary of forty clerks of class one.....	48, 000		
For salary of two laborers, per joint resolution of August 18, 1856, (11 Laws, page 145,) act of June 25, 1864, and act of July 23, 1866, (Laws, page 207, sec. 7) .....	1, 440		
Total.....	58, 640		\$58, 640

*Provided*, That the Secretary of the Interior, at his discretion, shall be, and he is hereby, authorized to use any portion of said appropriation for piece-work, or by the day, week, month, or year, at such rate or rates as he may deem just and fair, not exceeding a salary of twelve hundred dollars per annum.

*Estimates of appropriations required to meet contingent expenses of the office of Commissioner of the General Land Office for the fiscal year ending June 30, 1871.*

Heads or titles of appropriations.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of balances of appropriations unexpended June 30, 1870, which in part may be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
For cash system, maps, diagrams, stationery, furniture and repairs of the same, miscellaneous items, including two of the city newspapers, to be filed, bound, and preserved for the use of the office; for advertising and telegraphing; for miscellaneous items on account of bounty-lands and military patents under the several acts, and for contingent expenses under swamp-land act of September 28, 1850. ....	\$10, 000		\$10, 000

DEPARTMENT OF THE INTERIOR,  
General Land Office, November 1, 1869.

JOS. S. WILSON, *Commissioner*

No. 14.—*Estimate of appropriations required to meet expenses of collecting the revenue from the sales of public lands in the several States and Territories for the fiscal year ending June 30, 1871.*

State.	Land office.	Salaries and commissions.	Incidental expenses.	Total.
Ohio .....	Chillicothe .....	\$1,200	\$100	\$1,300
Indiana .....	Indianapolis .....	1,200	100	1,300
Illinois .....	Springfield .....	1,200	100	1,300
Missouri .....	Boonville .....	6,000	300	14,700
	Ironton .....	4,000	200	
	Springfield .....	4,000	200	
Michigan .....	Detroit .....	3,000	200	23,000
	East Saginaw .....	4,000	200	
	Ionina .....	5,000	200	
	Marquette .....	5,000	200	
	Traverse City .....	5,000	200	
Iowa .....	Des Moines .....	3,000	150	14,600
	Council Bluffs .....	2,000	150	
	Fort Dodge .....	3,000	150	
	Sioux City .....	6,000	150	
Wisconsin .....	Menasha .....	5,000	150	25,900
	Falls St. Croix .....	4,000	150	
	Stevens Point .....	4,000	150	
	La Crosse .....	4,000	150	
	Bayfield .....	2,000	150	
Minnesota .....	Eau Claire .....	6,000	150	36,700
	Taylor's Falls .....	4,000	200	
	St. Cloud .....	6,000	200	
	Jackson .....	6,000	300	
	Greenleaf .....	6,000	200	
	St. Peter .....	6,000	200	
	Du Luth .....	3,000	200	
	Alexandria .....	4,000	400	
California .....	San Francisco .....	6,000	500	39,900
	Marysville .....	6,000	500	
	Humboldt .....	3,000	200	
	Stockton .....	6,000	400	
	Visalia .....	6,000	300	
	Sacramento .....	4,000	400	12,300
	Los Angeles .....	6,000	600	
Nevada .....	Carson City .....	5,000	400	
	Austin .....	2,000	300	
	Belmont .....	2,000	300	15,900
	Aurora .....	2,000	300	
Oregon .....	Oregon City .....	6,000	300	
	Roseburg .....	6,000	300	17,600
	Le Grand .....	3,000	300	
Kansas .....	Topeka .....	5,000	200	
	Humboldt .....	6,000	200	23,400
Nebraska .....	Junction City .....	6,000	200	
	West Point .....	4,000	300	
	Beatrice .....	6,000	300	
	Lincoln .....	6,000	300	
	Dakota City .....	3,000	200	13,800
	Grand Island .....	3,000	300	
Alabama .....	Montgomery .....	6,000	400	
	Huntsville .....	4,000	200	10,900
	Mobile .....	3,000	200	
Arkansas .....	Little Rock .....	4,000	300	
	Clarksville .....	3,000	300	9,100
Louisiana .....	Washington .....	3,000	300	
	New Orleans .....	4,000	500	
	Natchitoches .....	2,000	300	6,500
Florida .....	Monroe .....	2,000	300	
	Tallahassee .....	6,000	500	4,500
Mississippi .....	Jackson .....	4,000	500	
Washington Ter. ....	Olympia .....	6,000	300	12,600
	Vancouver .....	6,000	300	
Colorado Territory ..	Denver .....	6,000	400	13,200
	Central City .....	4,000	400	
	Fair Play .....	2,000	400	
Idaho Territory ....	Boise City .....	3,000	400	5,800
	Lewiston .....	2,000	400	
Dakota Territory ...	Vermillion .....	6,000	400	6,400
Montana Territory ...	Helena .....	3,000	400	3,400
Arizona Territory ...	Prescott .....	3,000	500	3,500
Utah Territory .....	Salt Lake City .....	6,000	400	6,400
New Mexico Ter. ...	Santa Fé .....	2,000	200	2,200
Total .....		305,600	20,600	326,200

NOTE.—The aggregate amount, as above estimated, is an increase in the sum of \$15,800 over the amount estimated and appropriated for the service of collecting the revenue from the sales of public lands for the current year. This is rendered necessary by the largely increased sales of lands and by the opening of additional land offices in California, Nebraska, and Minnesota, in pursuance of executive orders.

JOS. S. WILSON, *Commissioner.*



No. 15.—*Estimates of appropriations required for the surveying department for the fiscal year ending June 30, 1871.*

Objects of appropriation.	Estimates by the surveyors general.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of the balances of appropriations unexpended June 30, 1870, which in part may be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
For compensation of surveyors general and their clerks, in addition to the unexpended balances of former appropriations for the same objects:				
1. For compensation of the surveyor general of Louisiana, per act of March 3, 1831, (4 Stat., p. 492, sec. 5.)	\$4,000	\$2,000	-----	-----
2. For compensation of the clerks in the office of the surveyor general of Louisiana, per act of May 9, 1836, (5 Stat., p. 36, sec. 1.)	7,200	2,500	-----	-----
3. For compensation of the surveyor general of Florida, per act of March 2, 1833, (4 Stat., p. 624, sec. 1.)	2,000	2,000	-----	\$2,000
4. For compensation of the clerks in the office of the surveyor general of Florida, per act of May 9, 1836, (5 Stat., p. 26, sec. 1.)	6,400	3,500	-----	3,500
5. For compensation of the surveyor general of Minnesota, per act of May 18, 1796, (1 Stat., p. 464, sec. 10.) and act of March 3, 1857, (11 Stat., p. 212, sec. 1.)	2,600	2,000	-----	2,000
6. For compensation of the clerks in the office of the surveyor general of Minnesota, per act of May 9, 1836, (5 Stat., p. 26, sec. 1.) and act of March 3, 1857, (11 Stat., p. 212, sec. 1.)	8,700	6,300	-----	2,500
7. For compensation of the surveyor general of the Territory of Dakota, per act of March 2, 1861, (12 Stat., p. 244, sec. 17.)	2,000	2,000	-----	2,000
8. For compensation of the clerks in the office of the surveyor general of Dakota, per act of March 2, 1861, (12 Stat., p. 244, sec. 17.)	6,300	6,300	-----	2,500
9. For compensation of the surveyor general of Kansas, per act of July 22, 1854, (10 Stat., p. 309, sec. 10.)	2,000	2,000	-----	2,000
10. For compensation of the clerks in the office of the surveyor general of Kansas, per act of July 22, 1854, (10 Stat., p. 309, sec. 10.)	6,400	6,300	-----	4,000
11. For compensation of the surveyor general of Colorado, per act of February 28, 1861, (12 Stat., p. 176, sec. 17.)	3,000	3,000	-----	3,000
12. For compensation of the clerks in the office of the surveyor general of Colorado, per act of February 28, 1861, (12 Stat., p. 176, sec. 17.)	7,800	4,000	-----	4,000
13. For compensation of the surveyor general of New Mexico, per act of July 22, 1854, (10 Stat., p. 308, sec. 1.)	3,000	3,000	-----	3,000
14. For compensation of the clerks in the office of the surveyor general of New Mexico, per act of July 22, 1854, (10 Stat., p. 308, sec. 1.)	5,600	4,000	-----	-----
15. For compensation of the surveyor general of California and Arizona, per act of May 30, 1862, (12 Stat., p. 410, sec. 9.) and act of March 2, 1867, (14 Stat., p. 543, sec. 4.)	3,000	3,000	-----	3,000
16. For compensation of the clerks in the office of the surveyor general of California and Arizona, per act of March 3, 1853, (10 Stat., p. 245, sec. 2.)	15,400	11,000	-----	4,500
17. For compensation of the surveyor general of Idaho, per act of June 29, 1866, (14 Stat., p. 77.)	3,000	3,000	-----	3,000
18. For compensation of the clerks in the office of the surveyor general of Idaho, per act of June 29, 1866, (14 Stat., p. 77.)	4,000	4,000	-----	4,000
19. For compensation of the surveyor general of Nevada, per act of July 4, 1866, (14 Stat., p. 85, sec. 4.)	3,000	3,000	-----	2,500
20. For compensation of the clerks in the office of the surveyor general of Nevada, per act of July 4, 1866, (14 Stat., p. 85, sec. 4.)	7,800	4,000	-----	4,000
21. For compensation of the surveyor general of Oregon, per act of May 30, 1862, (12 Stat., p. 410, sec. 10.)	2,500	2,500	-----	2,500

No. 15.—*Estimates of appropriations required for the surveying department, &c.*—Continued.

Objects of appropriation.	Estimates by the surveyors general.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of the balances of appropriations unexpended June 30, 1870, which in part may be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
22. For compensation of the clerks in the office of the surveyor general of Oregon, per act of September 27, 1850, (9 Stat., p. 496, sec. 2.)	\$5, 400	\$4, 000	.....	\$4, 000
23. For compensation of the surveyor general of Washington Territory, per act of May 30, 1862, (12 Stat., p. 410, sec. 9.)	2, 500	2, 500	.....	2, 500
24. For compensation of the clerks in the office of the surveyor general of Washington Territory, per act of March 3, 1855, (10 Stat., p. 674, sec. 6.)	5, 900	4, 000	.....	4, 000
25. For compensation of the surveyor general of Nebraska and Iowa, per act of August 8, 1846, (9 Stat., p. 79, sec. 1.) and act of July 28, 1866, (14 Stat., p. 448.)	2, 000	2, 000	.....	2, 000
26. For compensation of the clerks in the office of the surveyor general of Nebraska and Iowa, per act of August 8, 1846, (9 Stat., p. 79, sec. 1.) and act of July 28, 1866, (14 Stat., p. 344.)	7, 500	6, 300	.....	4, 000
27. For compensation of the surveyor general of Montana, per act of March 2, 1867, (14 Stat., p. 542, sec. 1.)	3, 000	3, 000	.....	3, 000
28. For compensation of the clerks in the office of the surveyor general of Montana, per act of March 2, 1867, (14 Stat., p. 542, sec. 1.)	4, 000	4, 000	.....	3, 000
29. For compensation of the surveyor general of Utah Territory, per act July 16, 1868, (15 Stat., p. 91, sec. 1.)	3, 000	3, 000	.....	3, 000
30. For compensation of the clerks in the office of the surveyor general, of Utah Territory, per act of July 16, 1868, (15 Stat., p. 91, sec. 1.)	4, 700	4, 000	.....	4, 000
31. For compensation of the clerks in the offices of surveyors general to be apportioned to them according to the exigencies of the public service, and to be employed in transcribing field notes of surveys, for the purpose of preserving them at the seat of government.	.....	20, 000	.....	.....
32. For compensation of the recorder of land titles in Missouri, per act of March 2, 1805, (2 Stat., p. 326.)	.....	500	.....	500
	.....	132, 700	.....	.....
For contingent expenses of the offices of the surveyors generals of different surveying districts, in addition to the unexpended balances of former appropriations for the same objects:				
33. For rent of office for the surveyor general of Louisiana, fuel, books, stationery, and other incidental expenses.	3, 400	3, 000	.....	.....
34. For rent of office for the surveyor general of Florida, fuel, books, stationery, and other incidental expenses.	1, 500	1, 500	.....	.....
35. For rent of office for the surveyor general of Minnesota, fuel, books, stationery, and other incidental expenses.	2, 200	2, 200	.....	.....
36. For rent of office for the surveyor general of the Territory of Dakota, fuel, books, stationery, and other incidental expenses, per act of March 2, 1861, (12 Stat., p. 244, sec. 17.)	2, 000	2, 000	.....	2, 000
For rent of office for the surveyor general of Kansas, fuel, books, stationery, and other incidental expenses, per act of July 22, 1854, (10 Stat., p. 310, sec. 10.)	2, 000	2, 000	.....	2, 000
For rent of office for the surveyor general of the Territory of Colorado, fuel, books, stationery, and other incidental expenses, per act of February 28, 1861, (12 Stat., p. 176, sec. 17.)	2, 000	2, 000	.....	2, 000

No. 15.—*Estimates of appropriations required for the surveying department, &c.*—Continued.

Objects of appropriation.	Estimates by the surveyors general.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of the balances of appropriations unexpended June 30, 1870, which in part may be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
39. For rent of office for the surveyor general of New Mexico, fuel, books, stationery, and other incidental expenses, per act of July 23, 1854, (10 Stat., p. 308, sec. 1.)	\$1,200	\$1,200	-----	\$1,200
40. For rent of office for the surveyor general of California and Arizona, fuel, books, stationery, and other incidental expenses, per act of March 3, 1853, (10 Stat., p. 245, sec. 2.)	7,500	6,000	-----	4,000
41. For rent of office for the surveyor general of Oregon, fuel, books, stationery, and other incidental expenses, per act of September 27, 1850, (9 Stat., p. 456, sec. 2.)	2,000	2,000	-----	2,000
42. For rent of office for the surveyor general of Washington Territory, fuel, books, stationery, and other incidental expenses, per act of July 17, 1854, (10 Stat., p. 306, section 7.)	2,000	2,000	-----	2,000
43. For rent of office for the surveyor general of Nevada, fuel, books, stationery, and other incidental expenses, per act of July 4, 1866, (14 Stat., p. 86.)	4,200	4,000	-----	2,000
44. For rent of office for the surveyor general of Idaho, fuel, books, stationery, and other incidental expenses, per act of June 29, 1866, (14 Stat., p. 77.)	3,000	2,500	-----	2,500
45. For rent of office for the surveyor general of Nebraska and Iowa, fuel, books, stationery, and other incidental expenses, per act of June 12, 1838, (5 Stat., p. 243.)	2,100	2,000	-----	2,000
46. For rent of office for the surveyor general of Montana, fuel, books, stationery, and other incidental expenses, per act of March 2, 1867, (14 Stat., p. 542.)	2,000	3,000	-----	2,000
47. For rent of office for the surveyor general of Utah Territory, fuel, books, stationery, and other incidental expenses, per act of July 16, 1863, (15 Stat., p. 91, sec. 1.)	2,400	2,000	-----	2,000
		37,400	-----	

## EXPLANATION OF THE FOREGOING ESTIMATES.

6 & 8.—\$6,300 is allowed by the organic act. The estimates of like amounts were submitted for the year ending June 30, 1870, but having been reduced to \$2,500 in the appropriation act, necessitated a deficiency estimate now submitted for the service during the fiscal year ending June 30, 1870.

10.—\$6,300 is allowed by the organic act. The estimate of like amount was submitted for the year ending June 30, 1870, but having been reduced to \$4,000 in the appropriation act, necessitated a deficiency estimate now submitted for the service during the fiscal year ending June 30, 1870.

16.—\$11,000 is allowed by the organic act. The estimate of like amount was submitted for the year ending June 30, 1870, but having been reduced to \$4,500 in the appropriation act, necessitated a deficiency estimate now submitted for the service during the fiscal year ending June 30, 1870.

26.—\$6,300 is allowed by the organic act. The estimate of like amount was submitted for the year ending June 30, 1870, but having been reduced to \$4,000 in the appropriation act, necessitated a deficiency estimate now submitted for the service during the fiscal year ending June 30, 1870.

28.—\$4,000 is allowed by the organic act. The estimate of like amount was submitted for the year ending June 30, 1870, but having been reduced to \$3,000 in the appropriation act, necessitated a deficiency estimate now submitted for the service during the fiscal year ending June 30, 1870.

31.—\$20,000. The compensation fixed by law to the clerks in the several surveying districts having proved insufficient, special estimates have been for many years past submitted and appropriations made. The present estimate is apportioned as follows: Louisiana, \$4,000; California, \$3,000; Colorado, \$2,000; Nevada, \$2,000; Florida, \$2,000; Minnesota, Oregon, and Washington, \$1,000 each; and Utah \$700.

33 to 39 & 41 to 47.—The organic acts of the respective surveying districts provide \$1,000. This amount having proved inadequate, special estimates have been submitted from year to year, and appropriations made accordingly; the present estimates are absolutely required for the service.

JOS. S. WILSON, Commissioner.



No. 16.—*Estimates of appropriations required for surveying the public lands for the fiscal year ending June 30, 1871.*

Objects of appropriation.	Estimated by the surveyor general.	Estimates of appropriations required for the service of the fiscal year ending June 30, 1871.	Estimates of the balances of appropriations unexpended June 30, 1870, which, in part, may be applied to the service of the next fiscal year.	Appropriations for the service of the fiscal year ending June 30, 1870.
1. For surveying the public lands in Louisiana at rates not exceeding \$10 per mile for township, and \$8 for section lines, including the survey of township 12, south, range 11 east, in which the city of New Orleans is situated; the survey of this township at \$25 per lineal mile.	\$21,590	\$10,000	.....	.....
2. For surveying the public lands in Florida, at rates not exceeding \$10 per mile for standard lines, \$7 for township, and \$6 for section lines.	32,000	10,000	.....	.....
3. For surveying the public lands in Minnesota, at rates not exceeding \$10 per mile for standard lines, \$7 for township, and \$6 for section lines.	40,000	40,000	.....	\$17,500
4. For surveying the public lands in Dakota Territory, at rates not exceeding \$10 per mile for standard lines, \$7 for township, and \$6 for section lines.	40,000	20,000	.....	15,000
5. For surveying the public lands in Montana Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	45,000	20,000	.....	25,000
6. For surveying the public lands in Nebraska, at rates not exceeding \$10 per mile for standard lines, \$7 for township, and \$6 for section lines.	79,302	40,000	.....	40,000
7. For surveying the public lands in Kansas, at rates not exceeding \$10 per mile for standard lines, \$6 for township, and \$5 for section lines.	65,464	40,000	.....	40,000
8. For surveying the public lands in Colorado Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	71,220	40,000	.....	30,000
9. For surveying the public lands in Nevada, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	47,800	40,000	.....	40,000
10. For surveying the public lands in Idaho Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	49,140	20,000	.....	25,000
11. For surveying the public lands in New Mexico Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	40,542	5,000	.....	5,000
12. For surveying the public lands in Arizona Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	10,000	5,000	.....	5,000
13. For surveying the public lands in California, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	70,000	40,000	.....	50,000
14. For surveying the public lands in Oregon, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	58,790	25,000	.....	40,000
15. For surveying the public lands in Washington Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	63,888	25,000	.....	15,000
16. For surveying the public lands in Utah Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	50,000	25,000	.....	25,000
17. For surveying the public lands in Wyoming Territory, at rates not exceeding \$15 per mile for standard lines, \$12 for township, and \$10 for section lines.	.....	.....	\$25,000	25,000

#### EXPLANATION OF THE FOREGOING ESTIMATES.

1. \$15,000 is estimated for the sub-divisional surveys in the southwestern, southeastern, and northwestern districts, the lands formerly regarded as swamp and overflowed, but now being fit for agricultural purposes. Also, for the survey of the New Orleans township, which, on account of great intricacy of private claims, has never been surveyed.

2. \$20,000 is estimated for the surveys of standard, parallel, township, and subdivisional lines in the southern peninsula of Florida, situated north and south of the Caloosahatchee river, where settlements

are reported and to which immigration is tending, the lands being well adapted for tropical products and especially for the sugar cane.

3. \$40,000 is submitted for the extension of the lines of public surveys required to meet the unusual demands of rapidly settling country, as well as the requirements of different railroads in the State to select lands granted to companies building the same, and also to the survey of pine lands on the upper Mississippi river.

4. \$30,000 is estimated for the extension of public surveys in the valleys of Dakota, Sioux, Wood, and Red River of the North, to accommodate rapid settlements made in those localities reported to possess good supply of water, timber, and agricultural lands.

5. \$30,000 is estimated for the extension of public surveys in the valleys of Missouri river, Jefferson, Madison, and Gallatin Forks of that river, and to extend the standard and township lines to mineral localities in order to enable surveyors to connect the mineral claims with the corners of public surveys.

6. \$40,000 is estimated for the extension of public surveys along the Union Pacific railroad already built, in order to enable the company to select lands granted by Congress, and also in other localities where actual settlements have been made.

7. \$40,000 is estimated for the extension of the public surveys along the Union Pacific railroad, eastern division, adjoining western boundary of the State, on the Arkansas river, between Fort Dodge and Fort Larned, and along the northern boundary of Osage ceded lands west of Arkansas, and in localities where actual settlements require the surveys.

8. \$40,000 is estimated for the extension of standard parallels and guide meridians east and west of Denver, and the survey of township and section lines in the San Luis, South and Middle Parks, and within Union Pacific railroad grant; the road having been completed, the assignment of lands granted to the company requires the surveys.

9. \$40,000 is estimated for the extension of standard parallels, township and section lines over the region of the State traversed by the Central Pacific railroad, already completed, requiring selection of granted lands; also the survey of the White Pine mineral district, and on Colorado River where settlements exist.

10. \$30,000 is estimated for the extension of standard parallels, township and section lines in the northern and southeastern portions of the Territory already settled, and to the mining regions, in order to enable mining claims to be located in reference to the corners of public surveys.

11. \$15,000 is estimated for the extension of standard parallels, township and section lines in the vicinity of San Juan River, Cimarron, Canadian, Pecos, and Gila Rivers, and near Fort Wingate, to afford early surveys in the mining regions.

12. \$10,000 is estimated for the extension of standard parallels, township and section lines in the localities where actual settlements exist.

13. \$50,000 is estimated for the extension of standard parallels, township and section lines along the Northern, Southern, and Central Pacific railroads, to afford facilities for selecting granted lands to the latter road, already completed, to survey mineral regions, and in localities adjoining private grants and actually settled.

14. \$30,000 is estimated for the extension of standard parallels, township and section lines in the southeastern part of the State already settled upon, on John Day River, where it is reported settlements extend nearly one hundred miles, and through which Dalles military road runs; also in Ochoco valley, on Crooked river.

15. \$30,000 is estimated for the extension of standard parallels, township and section lines in Yakama and Columbia River valleys, Colville, Walla-Walla, Cowlitz, Chehalis, and along Puget Sound.

16. \$25,000 is estimated for the surveys of public lands required along the Union Pacific railroad, already completed, to enable the company to select granted lands by Congress in aid of the construction of the road, and to extend the lines of the public surveys to include actual settlements on the Sevier, Pinto, and Virgin Rivers.

17. No estimates submitted, because Wyoming has not been organized into surveying districts.

NOTE.—No estimates are here submitted for the survey of Indian and other reservations contemplated by the 6th section of the act of Congress approved April 8, 1864, (U. S. Statutes, vol. 13, page 41,) as such estimates should more appropriately emanate from the Office of Indian Affairs, whose province it is to determine the localities and extent of such reservations, as the department was requested by letter from this office, dated September 20, 1869.

JOS. S. WILSON, *Commissioner*.

DEPARTMENT OF THE INTERIOR,

*General Land Office, November 1, 1869.*

No. 17.—*Estimates of appropriations required for the surveying department, to supply deficiency for the fiscal year ending June 30, 1870.*

No.	Objects of appropriation.	Amount required.
1	For compensation of the surveyor general of Louisiana .....	\$2, 072 00
2	For compensation of the surveyor general of Montana .....	519 23
3	For compensation of the surveyor general of Florida .....	148 35
4	For compensation of the clerks in the office of the surveyor general of Minnesota.....	650 00
5	For compensation of clerks in the office of the surveyor general of Dakota.....	2, 226 00
6	For compensation of the clerks in the office of the surveyor general of Kansas.....	2, 235 00
7	For compensation of the clerks in the office of the surveyor general of California and Arizona.....	6, 500 00
8	For compensation of the clerks in the office of the surveyor general of Nevada.....	236 00
9	For compensation of the clerks in the office of the surveyor general of Oregon.....	162 00
10	For compensation of the clerks in the office of the surveyor general of Nebraska and Iowa.....	1, 786 00
11	For compensation of the clerks in the office of the surveyor general of Montana.....	1, 000 00
12	For compensation of the clerks in the office of the surveyor general of Louisiana.....	2, 500 00
13	For rent of office for the surveyor general of Nevada, fuel, books, stationery, and other incidental expenses .....	3, 064 00
14	For rent of office for the surveyor general of Montana, fuel, books, stationery, and other incidental expenses .....	2, 260 00
		25, 358 58

EXPLANATION OF THE FOREGOING ESTIMATES.

1. The organic act authorizes not exceeding \$2,000, per act of March 3, 1831; (4 Laws, page 492, section 5.) The surveyor general was appointed subsequent to the date of the act making appropriations for the fiscal year ending June 30, 1870, and within the fiscal year ending June 30, 1869—thereby creating the deficiency.

2. The organic act authorizes not exceeding \$3,000, per act of March 2, 1867; (United States Laws, vol. 14, page 542.) General Land Office estimate of that amount was appropriated; but, as the surveyor general was appointed within the fiscal year ending June 30, 1869, and subsequent to the date of the act making appropriations for that year, the deficiency is thereby created.

3. The organic act authorizes not exceeding \$2,000, per act of March 2, 1833; (4 Laws, page 624, section 1.) The surveyor general was appointed within the fiscal year ending June 30, 1869, and subsequent to the date of the act making appropriations for that year—thereby creating the deficiency.

4. The organic act authorizes not exceeding \$6,300; (United States Laws, vol. 5, page 26, and vol. 11, page 212.) General Land Office estimate of that amount, absolutely required for the service, was reduced by Congress to \$5,000—thereby creating the deficiency.

5. The organic act authorizes not exceeding \$6,300; (United States Laws, vol. 12, page 244.) General Land Office estimate of that amount, absolutely required for the service, was reduced by Congress to \$2,500—thereby creating the deficiency.

6. The organic act authorizes not exceeding \$6,300; (United States Laws, vol. 12, page 244.) General Land Office estimate of that amount, absolutely required for the service, was reduced by Congress to \$4,000—thereby creating the deficiency.

7. The organic act authorizes not exceeding \$11,000; (United States Laws, vol. 10, page 245.) General Land Office estimate of that amount, absolutely required for the service, was reduced by Congress to \$4,000—thereby creating the deficiency.

8. The organic act authorizes not exceeding \$4,000, per act of July 4, 1866; (United States Laws, vol. 14, page 86.) General Land Office estimate of that amount was appropriated; but, as the amount authorized by the organic act is absolutely inadequate for the service, the deficiency is thereby created.

9. The organic act authorizes not exceeding \$4,000, per act of September 27, 1850; (9 Statutes, page 496, section 2.) General Land Office estimate of that amount was appropriated by Congress; but, as the amount authorized by the organic act is absolutely inadequate for the service, the deficiency is thereby created.

10. The organic act authorizes not exceeding \$6,300, per act of August 8, 1846; (9 Statutes, page 79, section 1, and act of July 23, 1866, United States Laws, vol. 14, page 542.) General Land Office estimate of that amount, required for the service, was reduced by Congress to \$4,000—thereby creating the deficiency.

11. The organic act authorizes not exceeding \$4,000, per act of March 2, 1867; (United States Laws, vol. 14, page 542.) General Land Office estimate of that amount was reduced by Congress to \$3,000—thereby creating the deficiency.

12. The organic act authorizes not exceeding \$2,500, per act of May 9, 1836; (United States Laws, vol. 5, page 26, section 1.) The office of surveyor general having been re-established subsequent to the date of the act making appropriations for the fiscal year ending June 30, 1870—thereby creating the deficiency.

13. The organic act authorizes \$1,000; (United States Laws, vol. 14, page 86.) This amount having proved entirely inadequate, \$4,000 was submitted, as absolutely required, but was reduced by Congress to \$2,000. This reduction—in connection with the insufficient amounts formerly appropriated for such service—creates the deficiency.

14. The organic act authorizes \$1,000; (United States Laws, vol. 14, page 542.) This amount having proved entirely inadequate, \$4,000 was submitted, as absolutely required, but was reduced by Congress to \$2,000. This reduction—in connection with the insufficient amounts formerly appropriated for such service—creates the deficiency.

JOS. S. WILSON, *Commissioner.*



No. 18 A.—*Report of the surveyor general of Florida.*UNITED STATES SURVEYOR GENERAL'S OFFICE,  
Tallahassee, Florida, September 22, 1869.

SIR: In compliance with instructions contained in your letter of June 22, and in others of subsequent date, I have the honor to submit the following report for the year ending with the 30th instant, and accompanying documents lettered from A to E.

## SYNOPSIS OF DOCUMENTS.

Document A is a map of the State, constructed to show the progress of surveys of public lands up to date. Accompanying this is a tabular statement, marked A, showing all the townships surveyed in this State from the time surveys were first instituted up to date; by whom and when surveyed; by whom and when approved; and giving the areas of public lands, private claims, and reservations in each township, carried out to the total column, and footed up to an aggregate.

Document B is a comprehensive statement showing the names of contractors, dates of contracts, character and locality of work, rate per mile, estimated amount, time allowed, number of miles returned, amount paid, and present condition of contracts not closed up to date.

Document C is a copy of estimates for surveying and office expenses for the fiscal year ending June 30, 1871.

Document D is a statement showing the number of cities and towns; the length of railroads complete, in progress of construction, and projected; and the estimated amounts of different qualities of land in the State.

Document E is an estimate of the value of raw material and the annual profit on manufactures and business of all kinds.

## CONDITION OF THE OFFICE.

On the 10th day of January, 1861, the State of Florida by convention passed the memorable ordinance of secession, and also an ordinance requiring government officers within her borders to surrender all public offices and property. Accordingly this office, then located at St. Augustine, was surrendered into the hands of irresponsible persons, together with all the books, records, and property thereto belonging.

These valuable records, many of them ancient and of national importance, were sadly neglected, mutilated, and scattered. Part were taken to Tallahassee and part left at St. Augustine; also, many valuable papers and all the furniture were lost or destroyed. In this condition I found the affairs of this surveying department, on entering upon the duties of my office last June.

The office of surveyor general for this district having been located at Tallahassee by order of the President, under date of June 21, 1869, I proceeded to St. Augustine in July and removed the Spanish archives, and such other land records as I could obtain, to this place, as directed by the department. I secured and fitted up rooms suitable for the transaction of business, and gave public notice in the Jacksonville Union, the paper having the largest circulation in the State, of the location and reorganization of the office. Two clerks and one messenger were employed, who have since been engaged in classifying and filing away the records and papers, and otherwise making themselves acquainted with the business of the office.

Much credit is due Colonel Apthorpe and Mr. Clay, clerks, for the patience and diligence with which they have performed their work. In short, the office is now well and conveniently arranged for the transaction of business.

## CONDITION OF PUBLIC SURVEYS.

The official surveys in this district ceased on the 10th of January, 1861, and have not since been resumed. There is an appropriation of \$10,000 for surveying the public lands in Florida yet unexpended, with which it is proposed to continue the surveys in South Florida during the approaching season. The most favorable time for surveying in that part of the State is from the 1st of December to the 1st of April, that being the coolest and driest season of the year. I shall at an early date enter into contract with competent deputies for the work. I have thought it proper and expedient to take as much time as possible to inform myself of the character of the territory to be surveyed and of the localities where the public interest requires the surveys to be most speedily prosecuted. I am inclined to the opinion that the most economical and satisfactory plan will be to continue the surveys southward in regular order from the points where they were dropped. It is proposed during the approaching season to carry forward the subdivisions of the townships north of the Caloosahatchie River, still unsectioned, as near to completion as practicable. During the surveying season following it will be advisable to run a standard meridian from some suitable point on the Caloosahatchie southward to the Gulf, and a basis parallel or correction line from near the mouth of

said river eastward across the peninsula, or as far as practicable—these lines to govern the survey of the remaining portion of the State.

My estimates of funds required for the surveying service and office and incidental expenses for the fiscal year ending June 30, 1871, were forwarded to the department on the 24th day of July, a copy of which is herewith submitted as part of this report.

#### CLASSIFICATION OF LANDS.

Referring to document D, I would remark that the estimate of the different kinds of land is necessarily somewhat inaccurate, but that it was made up with care and is a reasonable approximation to the truth. You will observe that a large portion of the land of the State may be and has been classed under several different heads at the same time. I have reported no mineral lands. Small quantities of bog iron ore have been found from time to time in Levy County, but I have been unable to get any accurate information as to its extent. Probably it is of little practical value.

#### VARIETY OF SOIL AND PRODUCTIONS.

The variety of soil in the State falls naturally in four classes, namely, marsh, pine, hummock, and scrub. The marsh lands are the richest of all. They are an alluvial deposit, and full of decayed vegetable matter; indeed, some of them are little else than beds of peat. They only require to be drained, and in some instances diked, to become inexhaustible mines of wealth. They also furnish never-failing stores of muck to enrich the neighboring pine lands. They will, when brought to a state of cultivation, produce abundantly anything that can be put into them. But the great crop, and that which is destined to be one of the main interests of the State, and a great source of wealth, is the sugar cane. On such lands it grows luxuriantly, tasseling out at the top, which it does not do in other States.

The pine lands are divided into three classes, according to their richness and the quality of timber upon them. The third class is, in its natural state, of little value. The trees are crooked and stunted, the grass scanty and tough, and the soil thin and cold. The second class has a fair growth of pine timber, with a kind of scrub-oak called black-jack, a moderate depth of sandy soil, and furnishes a medium quality of grass. With skillful cultivation and manuring it can be made to produce corn, potatoes, melons, cotton, and even cane; and it is well worth cultivation. The first class has a heavy growth of tall pine timber, rich succulent grass for cattle, and a mellow, deep soil, of a yellowish cast, frequently overlaid with clay. It will reward even the rudest husbandman with fair harvests, and with intelligent cultivation it will yield abundantly all kinds of crops, and improve yearly.

The scrub lands cover a comparatively small portion of the State. They are generally considered of little or no value, being composed mostly of white sand, and covered with a low, dense growth of crooked, gnarly brushwood or saw palmetto, so as to be in places almost impenetrable. Some scrub, however, apparently worthless, is overlaid with a deposit of small, comminuted shell, and on being broken up to the atmosphere becomes very productive. The hummock lands are divided into high and low. The low hummock is rich and somewhat swampy, requiring drainage, and covered with a growth of various kinds of wood—oak, hickory, ash, gum, bay, cedar, &c. When cleared and brought under cultivation it is very productive, and practically inexhaustible.

The high hummock is generally rolling land, covered with a heavy growth of great variety of timber, and composed of a rich and deep soil. It is highly valued. The very richest variety of hummock is the cabbage hummock—so called from the cabbage palmetto trees with which it is covered. These trees grow sometimes to the height of a hundred feet or more, but the general average is not far from thirty or forty feet. The soil is frequently composed of shell and vegetable matter mixed, and is of rare fertility. All these varieties of hummock are frequently enhanced in value by the presence of wild orange trees, sometimes singly, or in small groups, and again in large groves.

#### FRUITS.

Oranges and many other semi-tropical fruits are at home in this State, and their culture must become an important source of wealth. The orange, lime, fig, guava, banana, pineapple, pomegranate, cocoanut, and even the date palm and olive, as well as grapes in great variety, peaches, pears, quinces, and other fruits, grow here abundantly with a little labor and care.

Other crops in great abundance and variety can be raised. Ramie, that new fiber, so beautiful in texture and so easily raised, is at home here. Sisal hemp grows enormously. The palma christi, or castor bean, grows wherever a seed is dropped, and takes and keeps possession of the soil as well as other crops—such as indigo, and many more, destined to flourish under these semi-tropical skies when to the advantages of climate and soil shall be added those of skill and enterprise.

## SPOILIATION OF THE PUBLIC TIMBER.

I desire here to bring to your notice an evil which always has existed, now exists, and will continue to exist until some decisive steps are taken to put a stop to it. I mean the spoliation of the timber on the public lands. This is carried on extensively, and without concealment. I suppose it is not too much to say that at the very least 50 per cent. of the lumber sawed in this State is from logs cut on United States land. And not only is the pine subject to this wholesale spoliation, but the live-oak and red cedar have suffered their share of the general theft and destruction.

Sometimes the parties carry on their nefarious trade openly and without pretense of concealment, but oftener in some more secret manner. A man will enter a forty-acre lot and cut the timber from all the surrounding country; or, he will take the initiatory steps for a homestead entry, cut all the timber off, and then abandon the land, stripped of all that made it valuable. This is a matter which appears to me of importance sufficient to call for prompt and energetic action.

## CITIES AND TOWNS.

Of the cities and towns the principal one is Jacksonville, situated at one of the main entries to the State, and having all the trade of the rapidly developing St. John's River and its tributaries, beside much of the trade of the interior, over the railroad. It is far in advance of most of the other cities of the State in business activity, and, its citizens think, in promise for the future—though that is a point which only the future can determine. Substantial improvements are continually making, and the value of real estate rapidly and steadily advancing. The city has a population of about eight thousand.

Pensacola, in the west, is also a place which promises, from the advantages of situation and connections, to become a place of great importance. It has a magnificent harbor, with railroads connecting with the interior and with the neighboring States, pointing to a bright future. The population is about six thousand.

Tallahassee is the capital, and is beautifully situated on a commanding eminence in the midst of a rich farming country. It has a population of about four thousand.

St. Augustine, the "Ancient City," the oldest in the United States, still shows the stranger her old-fashioned coquina houses hanging their upper piazzas over the narrow streets, her pleasant plaza, her old Catholic cathedral, her Spanish fort with its secret dungeons, and her pleasant orange groves. Many invalids annually seek to regain their lost health amid the invigorating breezes. The business of the place is now mostly local, but with the completion of a line of railroads connecting her with the St. John's River it is expected that the traffic with the interior will increase. The population numbers about two thousand five hundred.

Fernandina is a place of considerable importance, having a fine harbor—the best on the Atlantic coast of the State—and a railroad to Cedar Keys, thus furnishing direct transit across the State. It has a population of about two thousand five hundred.

Key West is so isolated as to seem rather an independent island than a portion of the State. It is a thriving place, with a brisk business. The island is washed on all sides by the emerald waters of the Gulf, and fanned by continual ocean breezes. The population is about five thousand.

Of document E I would say that it has been made up carefully from the best and widest information I have been able to obtain, and is as near the exact facts as it is possible to come at present. The facilities for collecting such information in this State are neither numerous nor great.

## THE CROPS.

The crops this year are generally good, perhaps better than those of any previous year since the war. Cotton was extensively planted, and did well through the early and middle parts of the season, and would have yielded very heavily had not that scourge, the caterpillar, made its appearance just as the plant was maturing and the bolls ready to open, and devastated many fields completely, while others, more fortunate, partially escaped its ravages. It is thought that the crop will be reduced below its early promise fully one-third by this cause. The provision crop has done well generally, and but for the drawback above referred to, this year may be regarded as one of agricultural prosperity.

Very respectfully, your obedient servant,

M. L. STEARNS,  
*Surveyor General.*

Hon. JOS. S. WILSON,  
*Commissioner of the General Land Office.*



B.—Statement showing the names of contractors, date of contract, character, locality, rate, estimated amount, time allowed, miles returned, amount paid, and present condition of contracts not yet closed in this surveying district up to date.

Name of deputy.	Date of contract.	Character of work.	Locality.		Rate per mile.	Estimated number of miles.	Estimated amount of contract.	Time allowed.	Miles returned.	Amount paid.
			Township south.	Range east.						
James D. Galbraith <sup>1</sup> .....	Nov. 10, 1858.	Subdivision...	34 and 35 36 and 37	24 and 25 25	\$4 00	360	\$1,450 00	April 10, 1859 extended to April 10, 1860	Miles. CH's LE's 122 61 38	\$488 07
John B. Kilgore <sup>2</sup> .....	Oct. 20, 1859.	Subdivision...	37 32	{ 26, 27, 28 } { 29, 30 } 27	4 00	370	1,500 00	May 1, 1860	23 03 97	No evidence of any payment hav- ing been made.
Ramon Canova <sup>3</sup> .....	Oct. 26, 1860.	Subdivision.	{ 41, 42, and frac. 43 and 44. 40, 41, 42, and frac. 43 } 41, 42	25 26 27					118 68 73	No payment made.
William Mickler <sup>4</sup> .....	Dec. 5, 1860.	Subdivision.	{ Frac. 41, 42, 43, and 44 } { 41, 42, 43, and frac. 44 } { 41, 42, 43, and frac. 44 }	22 23 24	4 00	450	1,900 00	March 15, 1861		

<sup>1</sup> Townships 36 and 37 south, of range 25 east, were sent to Commissioner, 11th September, 1860. Township 34 south, range 25 east, was returned to office, but not approved prior to January 10, 1861. Balance of work not reported. Contractor deceased.

<sup>2</sup> Township 37 south, range 27 east, (east half,) sent to Commissioner in 1860. "The deputy declines finishing the contract, owing to the present relations of Florida with the federal government." From a report of F. L. Daney, late surveyor general, of February 21, 1861.

<sup>3</sup> Contract not to be found on file. Townships 43 and 44 south, range 25 east, were finished previous to January 10, 1861. Township 42 south, of same range, was finished January 11, 1861. Work not approved till after that date.

<sup>4</sup> Did not take the field previous to January 10, 1861.

M. L. STEARNS, *Surveyor General.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
Gallatin, Florida, September 22, 1860.

C.—*Estimate of appropriations required for the office of surveyor general of Florida for the fiscal year ending June 30, 1871, and for continuing the survey of the public lands for the same period.*

The salary for surveyor general.....	\$2,000
The regular clerks, as now allowed by law.....	4,200
For contingent expenses—rent of office, fuel, postage, stationery, instruments, &c.....	1,500
Amount asked for.....	\$7,700
Estimated amount required for extra clerk hire on account of the increase of surveying operations in this district for the fiscal year ending June 30, 1871:	
For one clerk in transcribing field notes.....	1,000
For one clerk to attend to and classify Spanish archives, transcribe and finish records mutilated and lost.....	1,200
Amount of extra appropriation.....	2,200
For the survey of 320 miles of standard lines, at \$10 per mile.....	3,200
For the survey of 1,200 miles of township lines south of township 42 south, and east of range 22 east of principal meridian, at \$7 per mile.....	8,400
For the survey of 3,500 miles of subdivision lines south of township 35 south, and east of range 27 east, at \$6 per mile.....	19,000
For scrap-work, resurvey of defective lines, &c.....	1,400
Amount for surveys.....	32,000
Total amount required.....	41,900

M. L. STEARNS,  
*Surveyor General.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
*Tallahassee, Florida, September 22, 1869.*

D.—*Statement showing the number of cities and towns, the lengths of railroads complete, in process of construction, and projected, and the estimated amounts of different qualities of land in the State of Florida.*

Number of cities and towns.....	53
Number of miles of railroad completed.....	391
Number of miles in course of construction.....	93
Number of miles projected.....	425
Acres of agricultural lands.....	27,000,000
Acres of mineral lands.....	
Acres of timbered lands.....	15,000,000
Acres of swamp lands.....	11,375,000
Acres of grazing lands.....	23,500,000
Acres of sterile lands.....	2,500,000
Acres covered by private claims.....	3,400,000

M. L. STEARNS,  
*Surveyor General.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
*Tallahassee, Florida, September 22, 1869.*

E.—*Estimate of the value of raw material and the annual profit on manufactures, and business of all kinds in the State of Florida.*

Aggregate of raw material annually produced.....	\$12,222,360
Aggregate of secondary values added to the raw material by the mechanical arts.....	3,225,000
Annual aggregate profit of capital invested in merchandising and trade of all kinds.....	1,337,500
Aggregate annual profit of capital loaned to government, to counties, towns, and other municipal bodies.....	4,800

Aggregate annual profit of capital invested in banking, insurance, and other branches dealing in money.....	\$43,750
Aggregate annual profit of capital invested in public transportation by land or water .....	225,675
Aggregate annual compensation of clerks, messengers, officers, sailors, conductors, engineers, laborers, and employes of all kinds in trade, transportation, banking, &c.....	1,552,157
Aggregate annual income of lawyers, physicians, clergymen, and all other professional men .....	715,000
Annual amount of wages paid to domestic servants of all kinds.....	480,000

M. L. STEARNS,  
*Surveyor General.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
*Tallahassee, Florida, September 22, 1869.*

### No. 18 B.—*Report of the surveyor general of Louisiana.*

OFFICE OF SURVEYOR GENERAL,  
*New Orleans, September 10, 1869.*

SIR: In the further fulfillment of your instructions of 12th and 24th of July last, and of the 18th ultimo, and in pursuance of custom, I have the honor to submit exhibits of the condition and requirements of the surveying service in Louisiana, premising by stating that during my yet brief term I have advised you promptly of every official transaction, and that I am limited in this report to the short period between the report of the surveyor general of October 1, 1860, and February 6, 1861, when he transferred the archives to the State, after which you have pronounced his acts null and void.

Tabular statement A will show the contracts and orders of survey, which remained unfinished on the 1st October, 1860, and the column of "remarks" any subsequent progress made upon them. Only one order has as yet been issued by me, and it I reported on the 9th instant. In connection with this statement, I invite your attention to my letter of the 28th of August last, with reference to outstanding contracts.

Statement B is of proposed surveys, nearly all of which have already been urgently recommended by my predecessors. I have inserted the old prices, satisfied that competent, faithful surveyors cannot be secured for less.

Statement C is an estimate of requisite funds for the service, and includes, you will perceive, the item of rent, as I could not obtain suitable rooms in the custom-house, and so reported to you on the 18th of August last. In reviewing this statement, I respectfully ask your favorable consideration of my letter of July 31, 1869, showing the necessity of increased clerical force to wind up this office in the time you contemplate.

Statement D shows the swamp lands selected after October 1, 1860, under grants of March 2, 1849, and September 23, 1850. Inquiries are so frequently made of this office with regard to the approval or rejection of such selections, that I respectfully ask hereafter to be furnished with copies, when finally acted upon by the Secretary of the Interior, provided it does not entail too much labor on the department.

Statement E shows the documents transmitted to the general and the local offices.

F is the skeleton diagram of the State, upon which I have endeavored to give all information that can well be placed upon a map of so small a scale.

My attention has been called to the numerous reservations of public lands in this State for naval, military, and commercial objects, many of which have long since subverted the purpose of their withdrawal from market, and others have been so despoiled of the timber, for which they were reserved, as to be worthless therefor, and only desirable for tillage. I shall send to you soon a list of these reservations, reporting their dates, character, and present condition; recommending that such as are not indispensable to the public service should be released by the President. This, I am persuaded, will restore a large quantity of lands which can only be entered under the homestead law, and will thereby be promoting the settlement and welfare of the country.

Very respectfully, your obedient servant,

JOHN LYNCH,  
*Surveyor General Louisiana.*

Hon. JOSEPH S. WILSON,  
*Commissioner of the General Land Office.*



A.—Statement of surveying contracts in Louisiana on the 1st October, and of orders of surveys, &amp;c., since issued.

Name of contractors.	Date.	District.	Expiration of contracts.	Estimated number of miles.	Price per mile.	Amount paid, embracing all accounts sent up.	No. of townships in contract.	No. of townships unfinished at date of last report.	Number of townships remaining unfinished.	Remarks.
Thomas Hunter.....	June 13, 1857	Northwestern	*Mar. 1, 1858	100	8	.....	5	5	5	Contract expired by limitation, and was relet to A. L. Mershon 26th February, 1861.
Theodore Gillespie....	Mar. 18, 1858	Southeastern	Jan. 1, 1860	380	8	.....	5	5	5	Notes of townships 12 and 13 south, range 8 east; townships 11, 12 and 13 south, range 9 east—returned September 29th, 1860, and approved November 12th, 1860; townships 9 and 10 south, ranges 8 and 9 east, and 11, range 8 east, approved August 6, 1861. (See letter to Commissioner August 25, 1860.)
Joseph Gorlinski .....	June 15, 1858	Greensburg	May 1, 1859	30	8	\$236 15	2	2	0	No returns made. <i>Contract null.</i>
Maurice Flanké.....	Feb. 1, 1859	Southeastern	Mar. 1, 1860	200	8	.....	5	5	5	Township 3 south, range 8 east, returned and approved July 20, 1860, and paid for. Balance of contract expired. No returns.
Charles G. Hale.....	Dec. 15, 1859	.....do.....	Jan. 1, 1861	265	8	1,313 06	2	2	1	Returned, approved, and paid for.
Albert L. Mershon....	Jan. 13, 1860	Northwestern	Jan. 1, 1861	200	8	.....	10	10	10	
ORDERS OF SURVEYS.										
V. Sulkowski.....	June 23, 1857	Southeastern	.....	.....	8	.....	.....	.....	.....	Part of claim of Robert Martin. Register's report No. 134. In township 17 south, range 16 east. Surveys arrested by threats of violence. (See Commissioner's letter of June 24, 1858.)
F. O. Cornay.....	Aug. 3, 1857	Southwestern	.....	.....	8	.....	.....	.....	.....	Resurveys in townships 15 and 16 south, range 9 east, and township 16 south, range 10 east. No returns. Survey now dead.
S. Valery Martin.....	Sept. 4, 1857	.....do.....	.....	.....	(t)	.....	.....	.....	.....	Survey lots in sections 25 and 26, 35 and 36, township 8 south, range 6 east. No returns.
Noah H. Phelps.....	Feb. 1, 1858	.....do.....	.....	50	8	.....	.....	.....	.....	Survey of Lake Tasse in townships 11 and 12 south, range 6 east, under decision in Commissioner's letter dated 18th September, 1857. No returns. Surveyor now dead.
Samuel C. Hepburn....	Jan. 10, 1859	North of Red River.	.....	.....	.....	.....	.....	.....	.....	Resurvey the claims of Stokely & Bowie, B 1924 and 1925. No returns.
F. G. Burbank.....	Sept. 30, 1859	Southwestern	.....	.....	8	.....	.....	.....	.....	Additional surveys in townships 9 and 10 south, range 13 west. Returned survey, not approved. (See letter to Commissioner General Land Office, August 28, 1860.)
Noah H. Phelps.....	Sept. 30, 1859	.....do.....	.....	.....	8	.....	.....	.....	.....	Surveyor now dead.

† To be paid by parties interested.

\* Time extended to March 1, 1859.

## A.—Statement of surveying contracts in Louisiana on the 1st October, &amp;c.—Continued.

Name of contractors.	Date.	District.	Expiration of contracts.	Estimated number of miles.	Price per mile.	Amount paid, embracing all accounts sent up.	No. of townships in contract.	No. of townships unfinished at date of last report.	Number of townships remaining unfinished.	Remarks.
Noah H. Phelps.....	Sept. 30, 1859	Southwestern.....	.....	.....	8	.....	.....	.....	.....	Surveys in township 9 south, range 8 east, (Cow Island.) Surveyor now dead.
V. Sulakowski .....	Dec. 14, 1859	Southeastern .....	.....	.....	(*)	.....	.....	.....	.....	Survey of the lots of section 57, township 15 south, range 17 east, (back pre-emptions of Thibodeaux & Molaison,) completed in the field, but not yet returned.
Thomas Hunter.....	Jan. 10, 1860	Northwestern.....	.....	.....	.....	.....	.....	.....	.....	Return traverse of Spanish Lake in section 14, township 9 north, range 9 west, in connection with late surveys. Not returned. Reissued to Franklin, March 7, 1861.
Joseph Gorlinski.....	July 29, 1860	Southeastern .....	.....	.....	8	.....	.....	.....	.....	Survey of township 15 south, range 25 east; township 19 south, ranges 23 and 26 east; township 20 south, ranges 23, 24, 25, 26 and 27 east; and township 21 south, range 23 east. Returns made after secession, approved and paid for by the State. (See letter to Commissioner of General Land Office, August 28, 1863.)
George S. Walmsley..	Sept. 12, 1860	Northwestern.....	.....	.....	(†)	.....	.....	.....	.....	Survey of claim of Emanuel Fernand. Report 522. Not returned.
F. O. Cornay.....	Sept. 26, 1860	Southwestern.....	.....	.....	(†)	.....	.....	.....	.....	Survey of D. C. of Charles Gravenberg, township 13 south, range 8 east. Not returned. Surveyor now dead.
T. Gillespie.....	Sept. 28, 1860	Greensburg.....	.....	.....	(†)	.....	.....	.....	.....	Survey of fractional section 5, township 1 south, range 4 east. Survey claim of Caleb Kemp, townships 3 and 4 south, range 5 east. Returned and approved.
Wm. H. Wilder.....	Sept. 9, 1863	Southeastern .....	.....	.....	(†)	4.....	.....	.....	.....	Survey of confirmed claim of David Clark, O. B. 104, in the New Orleans township. (See Commissioner's letter of July 13, 1863.)

\* \$10 per day and expenses.

† To be paid by parties interested.

‡ \$5 per day and expenses.

JOHN LYNCH,  
*Surveyor General La.*SURVEYOR GENERAL'S OFFICE,  
New Orleans, September 10, 1863

B.—*Proposed surveys in the State of Louisiana for the fiscal year ending June 30, 1871.*

District.	Township and range.	Estimated number of miles.	Price.	Amount.	Remarks.
Southwestern	Townships 8 and 9 south, range 1 west.....	125	\$8 00	\$1,000 00	Proposed in estimates of former surveyor's gen. Further examination and report required by Commissioner's letter of June 25, 1855. Necessity explained in surveyor general's annual report of 1855.
Do.....	Township 10 south, range 2 west; township 10 south, range 3 west.	200	8 00	1,600 00	
Do.....	Township 13 south, range 7 east.....	30	8 00	240 00	
Do.....	Township 3 south, range 3 east.....	100	8 00	1,280 00	
Do.....	Township 13 south, range 6 east.....	10	8 00	80 00	Under Commissioner's decision Sep. 18, '57.
Do.....	Townships 6 and 7 south, range 5 east.....	200	8 00	1,600 00	
Do.....	Townships 11 and 12 south, range 6 east.....	50	8 00	400 00	
Total southwestern district.				6,200 00	
Southeastern, east of river	Township 12 south, range 11 east, New Orleans township.....	250	35 00	8,750 00	Proposed, and necessity detailed in previous report.
Do.....	Township 8 south, range 3 east.....	75	8 00	600 00	
Southeastern, west of river.	Township 12 south, range 14 east, 30 miles; township 15 south, range 12 east, 10 miles; township 15 south, ranges 17 and 18 east, south of Bayou Lafourche, 200 miles	240	8 00	1,920 00	Proposed in estimates of former surveyor general.
Do.....	Partial surveys: township 13 south, ranges 16, 18, 20, 21; township 19, south, ranges 16, 17, 19 to 23 inclusive; township 20 south, ranges 19 to 30 inclusive; township 21 south, ranges 15 to 30 inclusive; range 20 east, secs. 1, 2, 3, 4 and 10 inclusive.	150	8 00	1,200 00	Enumerated in list accompanying report of H. C. De Almon, special agent, Feb. 1, 1867.
Do.....	Extensions of section lines: townships 13 and 14 south, range 20 east, southeastern district, through rejected portion of Paul Touy's claim.	15	8 00	120 00	
Total southeastern district.				12,590 00	
Northwestern	Section lines through Doleti Shamar, Bayou Wallace, Terre Noire, and other shallow lakes.	200	8 00	1,600 00	Necessity shown in surveyor general's report of 1858.
Do.....	Connections of the section lines with the exterior boundaries of the "Las Ormigas" and "La Nana" claims in townships 5 north, ranges 11, 12 and 13 west; township 6 north, ranges 10, 11, 13 and 14 west; township 7 north, ranges 10, 11 and 12 west; township 8 north, ranges 11, 12, 13 and 14 west; township 9 north, ranges 11 and 12 west; township 10 north, ranges 12 and 15 west; township 11 north, ranges 11, 12, 13 and 14 west.	150	8 00	1,200 00	
Total northwestern district.				2,800 00	Enumerated in list accompanying report of H. C. De Almon, special agent, Feb. 1, 1867.
Aggregate.....				21,590 00	

SURVEYOR GENERAL'S OFFICE,  
New Orleans, September 10, 1869.

JOHN LYNCH, Surveyor General La.



C.—*Estimate of funds to be appropriated for the fiscal year ending June 30, 1871, for surveying in Louisiana, for compensation of the surveyor general and the clerks in his office, and for contingent expenses of the surveyor general's office.*

LIABILITIES FOR UNPAID SURVEYS UNDER OUTSTANDING CONTRACTS AND INSTRUCTIONS,  
AND FOR COMPENSATION OF THE PRESENT SURVEYOR GENERAL.

Northwestern district.....	\$2,400 00
Southwestern district.....	920 00
Southeastern district.....	3,920 00
District north of Red River.....	1,500 00
	<u>\$8,740 00</u>

PROPOSED SURVEYS.

Southwestern district.....	6,200 00
Northwestern district.....	2,800 00
Southeastern district.....	12,590 00
	<u>21,590 00</u>

FOR SALARIES.

Salary of surveyor general.....	4,000 00
Arrearage for 1870.....	4,000 00
Salary of chief clerk.....	1,800 00
Salary of two draughtsmen, protractors, and calculators.....	3,000 00
Salary of two copying and recording clerks.....	2,400 00
	<u>15,200 00</u>

CONTINGENT EXPENSES.

Rent of rooms for surveyor general's office.....	900 00
Stationery, furniture, postage, book-binding, freight, fuel, servant hire, &c., &c.....	2,500 00
	<u>3,400 00</u>

Total amount of appropriations required for the year ending June 30,  
1871..... 48,930 00

JOHN LYNCH,  
*Surveyor General Louisiana.*

NEW ORLEANS, *September 10, 1869.*

D.—*Statement of swamp lands accruing to the State of Louisiana under the provisions of the acts of Congress approved March 2, 1849, and September 28, 1850, excepting such portions thereof as are rightfully claimed or owned by individuals, listed to the State, from October 1, 1860, to February 6, 1861.*

DISTRICT NORTH OF RED RIVER.

	<i>Acres.</i>
Township 7 north, range 10 east.....	175.87
Township 18 north, range 9 east.....	641.00
Township 18 north, range 10 east.....	80.00
Township 19 north, range 9 east.....	2,133.91
Township 19 north, range 11 east.....	241.43
Township 20 north, range 11 east.....	32.45
Total district north of Red River.....	<u>3,204.66</u>

SOUTHEASTERN DISTRICT.

Township 12 south, range 8 east.....	943.61
Township 12 south, range 9 east.....	2,198.16
Township 11 south, range 9 east.....	409.04
Total southeastern district.....	<u>3,550.84</u>
Aggregate.....	<u><u>6,855.50</u></u>

JOHN LYNCH,  
*Surveyor General Louisiana.*

SURVEYOR GENERAL'S OFFICE,  
*New Orleans, September 10, 1869.*

E.—Statement showing the character of the documents transmitted to the general and local land offices from October 1, 1860, to February 6, 1861.

## TO THE GENERAL LAND OFFICE.

Documents.	District.	Remarks.
Diagram.....	Greensburg.....	Claim of Pharoah Roach, Cos., 403.
Report.....	Southeast district.....	Of claim of Nathan Meriam, O. B., 179.
Diagram.....	Southeast district.....	Claims of Braxton Bragg & R. L. Gibson.
Diagram.....	Southwest district.....	Subdivision section 31, township 9 south, range 2 east.
Swamp list.....	North of Red River.....	Township 19 north, range 9 east.
Swamp list.....	North of Red River.....	Township 18 north, range 9 east.
Scrip.....	Southeast district.....	For claim of Ebenezer, Cos., 646. (Act of 1858.)
Scrip.....	.....	For claim of E. Prudhomme, O. B. B., 1815 and 1850.
Scrip.....	North of Red River.....	For claim of John R. Temple.
Diagram.....	Southeast district.....	Claim of Audry & Boudousquie.
Scrip.....	North of Red River.....	For claim of Hannibal Faulk <i>et als.</i>
Diagram.....	Northwest district.....	Claim of John Sibley, township 9 north, range 7 west.
Diagram.....	Southwest district.....	Private claims, township 3 south, range 1 east.
Swamp list.....	North of Red River.....	Township 7 north, range 10 east.
Abstracts.....	.....	Of certificates of re-location issued under act of June 2, 1858.
Maps and swamp lists {	Southeast district, } east of river. }	Townships 12 and 13 south, range 8 east.
Diagram.....	Greensburg.....	Townships 11, 12 & 13 south, range 9 east.
Field-notes.....	Greensburg.....	Subdivisions of section 5, township 1 south, range 4 east.
Abstracts.....	.....	Resurvey of township 2 south, ranges 1 to 14 east, inclusive.
.....	.....	Of certificates of re-location, under act of 1858, issued in November, 1860.
Diagram.....	Greensburg.....	Claim of Benj. Shields, in township 3 south, range 3 east.
Diagram.....	Greensburg.....	Of claim of Caleb Kempt, Cos., 421 and 432.
Swamp list.....	North of Red River.....	Townships 19 and 20 north, range 11 east.
Scrip.....	Greensburg.....	For claim of John McDonogh, R. R. 4, and J. Williams Corby, No. 21.
Swamp list.....	North of Red River.....	Township 18 north, range 10 east.
Scrip.....	Southeast district.....	Re-location of claim of Thomas Power, O. B. 134.
Diagram and scrip.....	.....	Claim of Adolphus Ducros, R. & R. No. 16, cert. No. 484.
Swamp list.....	North of Red River.....	Township 18 north, range 10 east.
Diagram.....	Southeast district.....	Claim of Walker Gilbert, O. B. 461.
Diagram.....	Southeast district.....	Claim of George Mather, R. & R. 1821, No. 111.
Map, diagram, table of } traverse and account of A. L. Menhor. }	.....	Township 19 north, range 12 west.
.....	.....	Township 18 north, range 12 west.
Diagram.....	Greensburg.....	Claim of B. Carter, Cos. A. 41, cert. 81.
Map and diagram.....	.....	Township 20 north, range 11 west.
.....	.....	Township 20 north, range 12 west.
Scrip.....	.....	Re-location of claim of Harris, Cos., 376, cert. 372.
Scrip.....	.....	Re-location of claim of John Towles, O. B., 800.
Scrip.....	.....	Re-location of claim of John Towles, O. B., 798.
Scrip.....	.....	Re-location of claim of John Towles, O. B., 799.
Diagram.....	Southwest district.....	Subdivisions in sec. 36, township 4 south, range 7 west.
Diagram.....	Southwest district {	Township 11 south, range 10 east.
.....	.....	Township 15 south, range 10 east.
Diagram.....	Northwest district {	Townships 14 and 15 north, range 10 west.
.....	.....	Township 15 north, range 11 west.

## TO THE REGISTER AT NATCHITOCHES.

Diagram.....	Northwest district.....	Claim of John Sibley, township 9 north, range 7 west.
Map.....	Northwest district {	Township 19 north, range 12 west.
.....	.....	Township 20 north, range 11 west.
Map.....	Northwest district {	Township 18 north, range 12 west.
.....	.....	Township 20 north, range 12 west.
Diagram.....	Northwest district.....	Township 15 north, range 10 west.

## TO THE REGISTER AT OPELOUSAS.

Diagram.....	Southwest district.....	Subdivisions section 31, township 9 south, range 2 east.
Plat.....	Northwest district.....	Section 43, John Sibley, township 9 north, range 7 west.
Diagram.....	Southwest district.....	Township 3 south, range 18, S. W. D.
Plats.....	.....	Claim of Wm. Thomas, B. 1214.
Plats.....	.....	Claim of Daniel Callaghan, B. 1147.
Plats.....	.....	Claim of Caesar Archinard, B. 1278.
Diagram.....	Southwest district.....	Subdivisions section 36, township 4 south, range 7 west.
Diagram.....	Southwest district.....	Subdivisions section 31, township 11 south, range 10 east.
Diagram.....	.....	Claim of Benj. R. Gantt, assignee of George Rene.

## REPORT OF THE COMMISSIONER OF

## TO THE REGISTER AT MONROE.

Documents.	District.	Remarks.
Swamp list .....	North of Red River.	In townships 18 and 19 north, range 9 east.
Swamp list .....	North of Red River.	In township 7 north, range 10 east.
Swamp list .....	North of Red River.	In townships 19 and 20 north, range 11 east.
Swamp list .....	North of Red River.	In township 18 north, range 10 east.
Swamp list .....	North of Red River.	In township 18 north, range 10 east.

## TO THE REGISTER AT GREENSBURG.

Diagram and plats .....	Greensburg .....	Claim of Pharoah Roach, Cos., 403, townships 7 and 8 south, range 3 east.
Diagram .....	Greensburg .....	Subdivisions, section 5, township 1 south, range 4 east.
Plats and diagrams .....	.....	Of claim of Caleb Kemp, Cos., 421, and Benjamin O. Williams, Cos., 432.
Diagram and plat .....	.....	Claim of Benjamin Shields, section 50, township 3 south, range 3 east.
Diagram .....	Greensburg .....	Claim of B. Carter, A 41, cert. 81, townships 3 and 4 south, range 1 west.

## TO THE REGISTER AT NEW ORLEANS.

Diagram .....	North of Red River.	Section 27, township 14 south, range 16 east, confirmed to Braxton Bragg and R. L. Gibson.
Diagram and plat .....	Southeastern dist...	Claim of M. T. Audry and Ant. Boudousquie, section 37, township 4 south, range 6 east.
Swamp lists and maps .....	Southeastern dist...	Townships 12 and 13 south, range 8 east, and townships 11, 12 and 13 south, range 9 east.
Diagram and plat .....	Southeastern dist., west of river.	Claim of Walker Gilbert, O. B. 461.
Diagram .....	Southeastern dist., east of river.	Township 12 south, range 4 east.
Plats .....	.....	Claim of Lucien Richard, O. B. 34, section 48, of Th. Levert, O. B. 134, section 49, and George Mather, report of 1821, No. 111, section 50.
Diagram .....	Southeastern dist...	Lots, township 20 south, range 18 east, and townships 21 and 22 south, range 19 east.
Plats .....	Southeastern dist...	Section 26, township 9 south, range 12 east, claim of Jos. Irwin, R. & R., 1816, No. 635.

JOHN LYNCH, *Surveyor General.*SURVEYOR GENERAL'S OFFICE,  
New Orleans, September 10, 1869.No. 18 C.—*Report of the surveyor general of Minnesota.*SURVEYOR GENERAL'S OFFICE,  
St. Paul, Minnesota, August 28, 1869.

SIR: In accordance with your instructions, I herewith submit in duplicate my annual report, showing the condition of the public surveys, and the general amount of office work performed since the date of the last annual report, together with the usual tabular statements relating thereto. With the exception of a small amount of township lines, and the subdivision of three townships embraced in the contract of Nathan Butler, deputy surveyor, all the field work undertaken at the date of the last annual report of my predecessor has been completed, the notes examined and approved, the original plats made, and copies of same, with transcripts of the field-notes, transmitted to the General Land Office, and a considerable portion of them to the local land offices. Mr. Butler is still in the field, and gives assurance that the surveys shall be completed within the time to which his contract was extended.

The deputies who have been contracted with, and have gone into the field this season, are all experienced surveyors, and it is confidently believed that their surveys will be faithfully executed within the time fixed in their contracts. A much greater amount of surveys in the western portion of the State this season would have been desirable, if the small appropriation had warranted it, as that locality is fast filling up with permanent settlers. Many unsurveyed townships contain now from twenty to fifty families, who are anxious that their lands should be surveyed, and the completion of the St. Paul and Pacific railroad this season, and the prospect of the Northern Pacific railroad being built at an early day, will greatly swell the tide of emigration in that direction. The country is every way desirable for settlement, and, whether surveyed or not, will speedily be overrun by settlers. The demand for lumber from the pine regions will be proportionately increased, and larger surveys of these lands will be



needed. In this connection I would reiterate the considerations heretofore offered for larger appropriations for field and office work than have been made for the last few years, and respectfully urge that the full amount estimated as necessary may be approved and recommended by the department. It is believed to be for the benefit of not only the general government, but for settlers and all concerned, that, for a few years at least, the surveys in Minnesota should be carried forward rapidly, in order to meet the exigencies consequent on the immense immigration of persons seeking permanent homes, and the rapidity with which railroads are being constructed in all parts of the State.

The care of the public lands, and the preservation of the timber thereon, has occupied a considerable part of my time since taking possession of this office. The examinations made by persons sent out this spring for that purpose show that the amount of trespassing was not very extensive during the past winter, and what was done was partly through ignorance of the exact lines of government surveys. Settlement is being made as fast as possible with trespassers, and but little trouble is anticipated in collecting nearly the full amount of stumpage and expenses of examination.

As your circular dated July 24 seems to require a separate statement and estimate of the proportionate amount of the different classes of lands in this surveying district, the number of cities and towns, aggregate length of railroads completed, in progress of construction, &c., it is deemed unnecessary to embody data of that kind in this report. I would merely say that all branches of industry and enterprise are flourishing very satisfactorily, and inducements for settlement in this State were never greater than now—a fact which seems to be appreciated, as immigration is greatly on the increase from year to year. The inducements are particularly great to the farmer and all tillers of the soil, as plenty of lands of the best quality are yet to be had under the homestead and pre-emption laws, or can be purchased at very reasonable rates. The rapid extension of railroads will soon place all the agricultural portion of the State within easy reach of markets.

The accompanying tables will exhibit generally the condition of the field and office work to this date. In addition thereto the following summary of office work, performed since the last annual report, is given:

The original notes of two thousand nine hundred and sixty (2,960) miles of subdivisional lines, including the usual amount of meanders, have been critically examined and platted, the contents of all fractional lots calculated, and placed on the plats and copies.

Sixty-seven (67) miles of township lines have been examined and placed on file, and transcripts made and transmitted. Forty-seven (47) township plats have been constructed from the original notes, copies made and transmitted to the General Land Office, and mostly copied and transmitted to the local land offices.

Two thousand five hundred and seventy (2,570) pages of transcripts for the department, and for record in this office, have been made, compared, and indexed, with full title page to each township. Seventy-nine (79) townships of descriptive notes, giving the establishment of exterior, interior, and meander corners, with description of soil, timber, &c., have been prepared, compared with the original notes, and transmitted to the local land offices, or placed on file in this office.

A large amount of miscellaneous business has been performed, such as preparing contracts and bonds, diagrams of the exterior boundaries of their surveys for deputies, making out their accounts, the general correspondence of the office and recording the same, &c., of which no regular or detailed statement can well be given.

The several statements, estimates, and map accompanying this report are as follows:

A.—Amount, character, locality, and present condition of the surveys in the field.

B.—Original, Commissioner's, and registers' plats made and copied, with date of transmission.

C.—Estimate of appropriation required for extending surveys for the fiscal year ending June 30, 1871.

D.—Estimate of appropriation required for salaries of surveyor general and clerks for the fiscal year ending June 30, 1871.

E.—Abstract account of the incidental expenses of the office for the year ending June 30, 1869.

F.—Sketch of the progress of the public surveys.

G.—Statement of the number of townships surveyed, and acres of land contained therein.

I am, very respectfully, your obedient servant,

C. D. DAVISON,  
*Surveyor General.*

Hon. JOSEPH S. WILSON,  
*Commissioner of the General Land Office.*

---

SURVEYOR GENERAL'S OFFICE,  
*St. Paul, Minnesota, October 1, 1869.*

SIR: In compliance with instructions contained in your circular dated July 24, 1869, requiring an estimate in square miles and acres of certain classes of lands therein des-

ignated, the aggregate length of railroads completed, &c., I have the honor to report as follows:

Of this surveying department, embracing an area of 53,459,840 acres, less than one-half has been surveyed. The unsurveyed portion is mainly in the northern part of the State, considerable portions of which have been but little explored, and but little comparatively is known of its character. Some of the questions propounded in your circular do not appear applicable to this surveying district, but they will be answered in their order as correctly as the circumstances will admit.

1. "The number of acres of agricultural lands, and comparative areas of agricultural and mineral lands?"

Of the 25,000,000 acres or thereabouts of surveyed lands, a very large proportion is good agricultural land. To these surveyed lands must be added a large region in the western and northwestern part of the State still unsurveyed, including nearly the whole valley of the Red River of the North. In estimating the amount of agricultural lands, I include certain districts of hard wood timber lands, which, when cleared, are the very best of farming lands. I estimate the number of acres of what may properly be denominated agricultural lands at 30,000,000.

In regard to the amount of mineral lands in Minnesota, too little is known as yet to give any value to an estimate. It is believed that on the north shore of Lake Superior copper and iron ores of a rich quality exist in abundance, and that the precious metals in paying quantities will be developed at Vermilion Lake, and perhaps at other points. But the extent of these mineral lands is yet to be shown.

2. "The number of acres of grazing land?"

All the agricultural lands of the State may properly be called grazing lands, and the area is estimated the same.

3. "The amount covered by private claims?"

None that I am aware of.

4. "The same of reclaimable swamp lands?"

Of the surveyed portion of the State, it is believed that one-half of the swamp lands, at least, may be reclaimed so as to be valuable for farming purposes or for meadows. In the northern and unsurveyed part, these lands will undoubtedly prove to be of less value, and a very small proportion of them reclaimable. Any estimate of the number of acres of reclaimable lands of this kind would be of little value.

5. "The same of sterile lands that may be reclaimed by irrigation or by other means?"

The surface of Minnesota is such, being generally level or moderately undulating, that there are no great facilities for irrigation, and but little necessity exists for the same. This is probably one of the best watered States in the whole country.

6. "The number of acres broken by mountain ranges?"

This question might properly be answered by saying, there are no mountain ranges in this State.

In the northern part, and to a small extent in the western part of the State, there are districts which might be termed highlands. Their extent is, however, comparatively small, estimated at 12,000 square miles, generally covered with timber, mainly pine, fir, spruce, &c.

7. "The number of acres of timber land?"

Estimated at about three-fifths of the area of the State, or 32,000,000 acres.

8. "What is the number of cities and towns?"

The number of incorporated cities in the State is ten, (10,) the most populous of which are St. Paul, Minneapolis, Winona, Rochester, Stillwater, &c.

The estimated number of towns is about one hundred (100.)

9. "What is the aggregate length of railroads completed, in progress of construction, and projected?"

The aggregate length of railroads completed and in operation in Minnesota is six hundred and thirteen (613) miles; in progress of construction, three hundred (300) miles, and the whole length of these lines, some portion of which is constructed, is one thousand five hundred and seventy-two (1,572) miles, as follows:

	Completed.	In progress.	Whole length of line.
Lake Superior and Mississippi railroad .....	65	26	154
St. Paul and Sioux City railroad .....	86	14	195
St. Paul and Pacific railroad, (main line) .....	80	135	215
St. Paul and Pacific railroad, (branch line) .....	65	.....	70
Milwaukee, St. Paul and Minneapolis railroad .....	132	18	150
Southern Minnesota railroad .....	50	40	254
Winona and St. Peter railroad .....	105	34	175
Hastings and Dakota railroad .....	30	13	209
St. Paul and Chicago railroad .....	.....	20	150
Totals .....	613	300	1,572

Besides the above there are various other projected roads, but, as nothing has been done toward their construction, no reliable data in regard to them can be given.

It should be stated, however, that among the projected railroads is the "Northern Pacific," which it is presumed will shortly be constructed, crossing the State from some point at the head of Lake Superior to the Red River of the North. As the line is not definitely located, an estimate of its length would be of little value.

I am, very respectfully, your obedient servant,

C. D. DAVISON,  
*Surveyor General.*

Hon. JOSEPH S. WILSON,  
*Commissioner General Land Office.*



A.—Statement showing the amount, character, locality, and present condition of the surveys in Minnesota, uncompleted at and undertaken since the date of the last annual report.

Name of deputy.	Date of contract.	Character of work.	Amount and locality.	Present condition.
O. E. Garrison.....	May 25, 1868	Township lines and subdivisions.	Township lines between townships numbers 50 and 51, 51 and 52 north, ranges 26 and 27 west of 4th principal meridian. Range lines between ranges 25 and 26, 26 and 27 west, of townships 50 and 51 north. Subdivisions of townships 50 and 51 north, ranges 26 and 27 west of 4th principal meridian.	Surveys completed; approved, and notes and plats transmitted.
Isaac A. Banker.....	July 3, 1868	Township lines and subdivisions.	Township lines between townships 49 and 50 north, ranges 16 and 17 west of 4th principal meridian. Range lines between ranges 16 and 17, 17 and 18 west, of township 49 north. Subdivisions of townships 49 north, of ranges 16 and 17 west of 4th principal meridian.	Surveys completed; approved, and notes and plats transmitted.
Geo. B. Wright.....	Aug. 1, 1868	Subdivisions.....	Townships 123, 124, 125, and 126 north, ranges 42 and 43 west of 5th principal meridian.	Surveys completed; approved, and notes and plats transmitted.
Theodore H. Barrett and Orville Smith.	Aug. 1, 1868	Subdivisions.....	Townships 127 and 128 north, ranges 42, 43, 44, and 45 west; townships 129 and 130 north, ranges 43, 44, 45, and 46 west of 5th principal meridian.	Surveys completed; approved, and notes and plats transmitted.
R. H. L. Jewett and Geo. G. Howe.	Aug. 3, 1868	Subdivisions.....	Townships 101, 102, 103, and 104 north, ranges 39, 40, 41, and 42 west of 5th principal meridian.	Surveys completed; approved, and notes and plats transmitted.
Nathan Butler.....	Sept. 11, 1868	Township lines and subdivisions.	Township lines between townships 46 and 47 north, range 29 west of 4th principal meridian. Range lines between ranges 28 and 29, 29 and 30, of township 46 north. Subdivision of township 46 north, range 29 west; townships 54 and 55 north, range 27 west of 4th principal meridian; township 134 north, range 30 west of 5th principal meridian.	Notes of township 134, range 30 west, returned; approved and transmitted.
O. E. Garrison.....	May 28, 1869	Township lines and subdivisions.	Township lines between townships 52 and 53 north, ranges 26 and 27 west of 4th principal meridian. Range lines between ranges 25 and 26, 26 and 27 west, of townships 52 and 53 north. Subdivision of townships 52 and 53 north, ranges 26 and 27 west; and township 56 north, range 25 west of 4th principal meridian.	Notes of township 52 north, ranges 26 and 27 west, returned.
Geo. B. Wright and Geo. G. Beardsley.	June 4, 1869	Township line and subdivisions.	Township line between townships 121 and 122 north, range 46 west of 5th principal meridian. Subdivision of township 120 north, range 42 west, and that part of townships 118 and 119 north, range 42 west; townships 119 and 120 north, range 43 west; township 120 north, ranges 44 and 45 west; and township 121 north, ranges 45 and 46 west of 5th principal meridian, lying north of the Minnesota River.	Notes of townships 118, 119, and 120 north, range 42 west; 119 and 120, range 43 west; and 120, ranges 44 and 45 west, returned.
Thos. H. Walker.....	June 23, 1869	Subdivisions.....	Townships 55 and 56 north, range 24 west; township 56 north, range 26 west of 4th principal meridian; and township 135 north, range 30 west; townships 134 and 138 north, range 31 west of 5th principal meridian.	Deputy in the field; no returns.

B. F. Jenness.....	June 25, 1869	Township lines and subdivisions.	Township lines between townships 44 and 45 north, ranges 22 and 23 west; township lines between townships 45 and 46, and 46 and 47 north, ranges 20, 21, 22, and 23 west. Range lines between ranges 22 and 23 west of township 44 north; between ranges 20 and 21, 21 and 22, 22 and 23 west of townships 45, 46, and 47 north; between ranges 23 and 24 west of townships 46 and 47 north. Subdivisions of townships 45 north, ranges 47 and 48 west; townships 47 north, ranges 22 and 23 west—all west of 4th principal meridian.	Deputy in the field; no returns.
R. H. L. Jewett.....	July 30, 1869	Subdivisions.....	Townships 101, 102, 103, and 104, range 43 west, and townships 101, 102, and 103 north, range 44 west, of 5th principal meridian.	Deputy in the field; no returns.
Geo. B. Wright and Geo. G. Beardsley.	July 13, 1869	Subdivisions.....	Townships 131 north, ranges 44, 45, and 46 west. Fractional townships 129, 130, and 131 north, range 47 west, and townships 134, 135, and 136 north, ranges 43, 44, and 45 west of 5th principal meridian.	Deputies in the field; no returns.

SURVEYOR GENERAL'S OFFICE,  
St Paul Minnesota, August 23, 1869.

C. D. DAVISON, *Surveyor General.*

B.—Statement of original, Commissioner's, and registers' plats made and copied, date of transmission to the General Land Office and the local land offices.

Description.	Land office.	Original.	Commissioner's.	When trans- mitted.	Registers'.	When trans- mitted.	Total.
Township 50, range 26.....	St. Cloud.....	1	1	Oct. 28, 1868	1	Aug. 14, 1869	3
Township 51, range 26.....	do.....	1	1	Oct. 28, 1868	1	Dec. 3, 1868	3
Township 50, range 27.....	do.....	1	1	Oct. 28, 1868	1	Aug. 14, 1869	3
Township 51, range 27.....	do.....	1	1	Oct. 28, 1868	1	Dec. 3, 1868	3
Township 49, range 16.....	Duluth.....	1	1	Dec. 12, 1868	1	Aug. 14, 1869	3
Township 49, range 17.....	do.....	1	1	Dec. 12, 1868	1	Aug. 14, 1869	3
Townships 123 and 124, range 42.....	St. Cloud.....	2	2	Oct. 10, 1868	2	Aug. 14, 1869	6
Townships 125 and 126, range 42.....	Alexandria.....	2	2	Mar. 3, 1869	.....	.....	4
Township 127, range 42.....	do.....	1	1	Apr. 28, 1869	.....	.....	2
Township 128, range 42.....	do.....	1	1	June 25, 1869	1	July 26, 1869	3
Townships 123 and 124, range 43.....	St. Cloud.....	2	2	Jan. 21, 1869	2	Aug. 14, 1869	6
Townships 125, range 43.....	Alexandria.....	1	1	Mar. 3, 1869	.....	.....	2
Township 126, range 43.....	do.....	1	1	Mar. 25, 1869	.....	.....	2
Township 127, range 43.....	do.....	1	1	Apr. 28, 1869	.....	.....	2
Township 128, range 43.....	do.....	1	1	June 25, 1869	.....	.....	2
Township 129, range 43.....	do.....	1	1	June 10, 1869	.....	.....	2
Township 130, range 43.....	do.....	1	1	June 10, 1869	.....	.....	2
Township 127, range 44.....	do.....	1	1	Apr. 28, 1869	.....	.....	2
Townships 128 and 129, range 44.....	do.....	2	2	May 20, 1869	.....	.....	4
Township 130, range 44.....	do.....	1	1	May 20, 1869	1	July 26, 1869	3
Township 127, range 45.....	do.....	1	1	Apr. 28, 1869	1	July 26, 1869	3
Township 128, range 45.....	do.....	1	1	June 10, 1869	.....	.....	2
Townships 129 and 130, range 45.....	do.....	2	2	May 20, 1869	.....	.....	4
Townships 129 and 130, range 46.....	do.....	2	2	Jan. 10, 1869	.....	.....	4
Townships 101 and 102, range 39.....	Winnebago City.....	2	2	Feb. 17, 1869	2	May 26, 1869	6
Township 103, range 39.....	do.....	1	1	Oct. 29, 1868	1	Dec. 14, 1868	3
Township 104, range 39.....	do.....	1	1	Mar. 12, 1869	1	May 26, 1869	3
Townships 101 and 102, range 40.....	do.....	2	2	Feb. 17, 1869	2	May 26, 1869	6
Township 103, range 40.....	do.....	1	1	Nov. 25, 1868	1	Dec. 14, 1868	3
Township 104, range 40.....	do.....	1	1	Oct. 29, 1868	1	Dec. 14, 1868	3
Townships 101 and 102, range 41.....	do.....	2	2	Nov. 25, 1868	2	Dec. 14, 1868	6
Townships 103 and 104, range 41.....	do.....	2	2	Nov. 25, 1868	2	Dec. 14, 1868	6
Townships 101 and 102, range 42.....	do.....	2	2	Nov. 25, 1868	2	Dec. 14, 1868	6
Township 103, range 42.....	do.....	1	1	Oct. 29, 1868	1	Dec. 14, 1868	3
Township 104, range 42.....	do.....	1	1	Nov. 25, 1868	1	Dec. 14, 1868	3
Township 134, range 30.....	St. Cloud.....	1	1	June 12, 1869	.....	.....	2
Township 118, range 42.....	Greenleaf.....	1	1	Aug. 26, 1869	.....	.....	2
Township 119, range 42.....	do.....	1	1	Aug. 26, 1869	.....	.....	2
Township 119, range 43.....	do.....	1	1	Aug. 26, 1869	.....	.....	2
							129

SURVEYOR GENERAL'S OFFICE,  
St. Paul, Minn., Aug. 28, 1869.

C. D. DAVISON, *Surveyor General.*

C.—Estimate of appropriation required for continuing the public surveys in Minnesota for the fiscal year ending June 30, 1871.

For running township lines and subdividing townships in the pine regions on the Upper Mississippi River.....	\$10,000
For running township lines and subdividing townships near the line of the Lake Superior and Mississippi railroad.....	8,000
For surveying agricultural land in the western part of the State.....	22,000
	40,000
For the incidental expenses of the surveyor general's office, including pay of messenger, office rent, fuel, stationery, &c.....	2,200
	42,200

C. D. DAVISON, *Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
St. Paul, August 28, 1869.



D.—*Estimate of appropriation required for the salaries of the surveyor general and the clerks in his office for the fiscal year ending June 30, 1871.*

Salary of surveyor general.....	\$2,000
Salary of chief clerk.....	1,500
Salary of chief draughtsman.....	1,300
Salary of two assistant draughtsmen.....	2,400
Salary of three transcribing clerks.....	3,500
	<hr/>
	10,700

C. D. DAVISON, *Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*St. Paul, August 28, 1869.*

E.—*Abstract statement of the incidental expenses of the surveyor general's office from July 1, 1868, to June 30, 1869.*

For quarter ending September 30, 1868.....	\$357 25
For quarter ending December 31, 1868.....	459 25
For quarter ending March 31, 1869.....	319 75
For quarter ending June 30, 1869.....	765 88
	<hr/>
	1,902 13

C. D. DAVISON, *Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*St. Paul, August 28, 1869.*

G.—*Statement of townships surveyed from the 1st day of July, 1868, to the 30th day of June, 1869.*

No.	Township.	Range.	Area.	No.	Township.	Range.	Area.
			<i>Acres.</i>				<i>Acres.</i>
1	101 N.....	39 W.....	22,148.14	25	125 N.....	43 W.....	21,704.74
2	102 N.....	39 W.....	22,768.09	26	126 N.....	43 W.....	22,317.91
3	103 N.....	39 W.....	23,066.31	27	127 N.....	43 W.....	20,453.21
4	104 N.....	39 W.....	21,499.94	28	128 N.....	43 W.....	22,320.03
5	101 N.....	40 W.....	22,087.84	29	129 N.....	43 W.....	22,968.39
6	102 N.....	40 W.....	21,840.89	30	130 N.....	43 W.....	21,910.03
7	103 N.....	40 W.....	22,996.00	31	127 N.....	44 W.....	22,778.40
8	104 N.....	40 W.....	22,657.23	32	128 N.....	44 W.....	22,926.69
9	101 N.....	41 W.....	23,096.67	33	129 N.....	44 W.....	22,999.22
10	102 N.....	41 W.....	22,965.75	34	130 N.....	44 W.....	22,519.33
11	103 N.....	41 W.....	23,012.63	35	127 N.....	45 W.....	24,367.38
12	104 N.....	41 W.....	22,780.04	36	128 N.....	45 W.....	24,574.20
13	101 N.....	42 W.....	22,992.68	37	129 N.....	45 W.....	22,868.70
14	102 N.....	42 W.....	22,801.31	38	130 N.....	45 W.....	22,884.99
15	103 N.....	42 W.....	23,082.41	39	129 N.....	46 W.....	22,977.75
16	104 N.....	42 W.....	23,079.54	40	130 N.....	46 W.....	22,826.69
17	123 N.....	42 W.....	22,959.52	41	134 N.....	30 W.....	21,861.45
18	124 N.....	42 W.....	22,462.95	42	50 N.....	26 W.....	22,887.48
19	125 N.....	42 W.....	21,906.86	43	51 N.....	26 W.....	23,145.65
20	126 N.....	42 W.....	22,254.80	44	50 N.....	27 W.....	13,960.52
21	127 N.....	42 W.....	22,518.07	45	51 N.....	27 W.....	13,575.69
22	128 N.....	42 W.....	20,710.82	46	49 N.....	16 W.....	22,081.76
23	123 N.....	43 W.....	22,837.73	47	49 N.....	17 W.....	22,705.69
24	124 N.....	43 W.....	20,998.63	1,207	Previously reported...		23,992,493.27
Total townships surveyed, 1,254.....							25,034,634.02

C. D. DAVISON, *Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*St. Paul, August 28, 1869.*

No. 18 D.—*Report of the surveyor general of Dakota.*

SURVEYOR GENERAL'S OFFICE,  
Yankton, D. T., August 10, 1869.

SIR: I have the honor to submit the following report of the field and office work performed in this surveying district since the date of the last annual report of the surveyor general, together with the usual statements relating thereto, and marked A, B, and C.

## SURVEYS.

1. The eighth and ninth guide meridians, (or lines between ranges 59 and 60 and 66 and 67,) through townships 101 to 103, inclusive; the first and second standard parallels from the line between ranges 52 and 53 west to the Missouri River, amounting to three hundred and twenty-seven miles, seventy-seven chains, and fifty-six links.

2. All the proper township and range lines between the line on parallel of  $43^{\circ} 30'$  north latitude on the south, and the second standard parallel on the north, and between the ninth guide meridian on the east and the Missouri River. All the proper township and range lines of the fractional townships bordering on the Yankton Sioux Indian reservation, amounting to four hundred and thirty-seven miles, fifty-nine chains, and eighty-one links.

3. The boundary line of the Yankton Sioux Indian reservation has been retraced and established, amounting to fifty-five miles, fifty-eight chains, and twenty-seven links.

4. The following described fifty-seven townships and fractional townships have been subdivided into sections, viz: Townships 161 and 162 north, of ranges 50 and 51 west; townships 161, 162, 163, and 164 north, of ranges 52 and 53 west; townships 161 and 162 north, of range 54 west; townships 95, 96, and 97 north, of ranges 61 and 62 west; township 100 north, of ranges 60, 61, and 62 west; townships 97 and 98 north, of range 63 west; townships 99 and 100 north, of ranges 63, 64, and 65 west; township 99 north, of range 66 west; townships 93 north, of ranges 64, 65, and 66 west; townships 101, 102, and 103 north, of range 67 west; townships 101, 102, 103, and 104 north, of ranges 68, 69, 70, and 71 west; and townships 102, 103, and 104 west; all west of the fifth principal meridian; amounting to two thousand six hundred and thirty-eight miles, twenty-seven chains, and eighty-two links.

## OFFICE WORK.

1. The field-notes of all the above-described surveys have been carefully examined and approved.

2. A diagram has been made and the field-notes transcribed of the survey of the above-described standard parallels, guide meridians, and township lines, and transmitted to the General Land Office.

3. The field-notes of the above-described fifty-seven township subdivisions have been protracted, triplicate maps of each constructed, and the maps filed and transmitted, as required by law.

4. Transcripts have been prepared and transmitted of the entire field-notes of each of the fifty-seven townships last above named, all of which have been carefully compared with the original, and each has been prefaced by an index diagram.

5. Lists descriptive of the land and all the corners of the above-named townships have been made, carefully compared with the original field-notes, certified and transmitted to the local land office at Vermilion.

6. The usual amount of miscellaneous business has been performed, such as preparing contracts and bonds, (in quadruplicate,) with instructions and diagrams of the exterior boundaries of their surveys, for the use of deputies making out and recording their accounts and the accounts with the government, the general correspondence of the office and recording the same, together with other work, all of which occupied a large amount of time, but of which no regular or detailed statement can well be given.

## MISCELLANEOUS.

In addition to the remarks submitted in my estimate of appropriations for the next fiscal year, I deem it due to state that the best hopes of the people are being daily realized by the bountiful harvests now being gathered and stored. I had hoped to be able to submit herein some detailed and specific statements of productions per acre of different crops; but the early day at which my report is due prevents this. The present has been a trial year, agriculturally, for Dakota. Probably a larger acreage has been planted than in any two or three previous years. There has also been as great a variety of crops as could well be tried in this latitude and climate. Many of the farmers are here also for the first year, and crops have been raised under all the varying circumstances, favorable or disadvantageous, incident to agriculture in a newly-

settled region. There has been a scarcity of teams, machinery, and manual labor, which has commanded high prices. Yet, under all these circumstances, the results compare favorably with any part of the country. The wheat, oats, and barley which have been harvested generally are very superior. The crop has been uniformly good, or, if an occasional failure, it is traceable to obvious causes other than soil or climate.

I have seen fields of oats on which a number of good judges joined in estimating a yield of ninety bushels per acre from the present crop, while there are frequent cases where fifty, sixty, and seventy bushels are claimed. We have requested exact certified statements when available, and they will be submitted with other reports due from this office. Wheat has been equally fine. This is generally the Scotch Fife, Mediterranean, and Black Sea, and some bearded varieties. The first is generally commended as the best, and is regarded as more productive by about twenty per cent. under like circumstances. The production this year varies from twenty to forty bushels per acre, and can safely be placed at an average of twenty-five. Accurate certified statements will also be filed exhibiting the wheat yield. Corn, though not extensively cultivated, has yet given very great encouragement this year. Potatoes also promise to be very productive. The soil of the territory has but little clay, and a slight sandy admixture with the usual prairie mold; underneath there is no firm clay sub-soil or hard-pan of any kind. In the valleys this soil is very deep, and there is generally underneath it a porous, slightly sandy earth, which renders the soil valuable in resisting the bad effects of both drought and rain. The ground rapidly absorbs the heaviest rains, and is soon in a condition to be worked, while, after a long failure of rain, the plow continually turns up moist and fresh soil. The present season has been very fine. It has never been too dry, while it has received no damage from heavy rains, from which bordering States have suffered. The Territory has not been visited in the eastern or southern parts by the destructive grasshoppers, while the potato-bug and other insects have done little if any damage.

Altogether the year has been a most successful one, and can well be named the first in the prosperity which Dakota has now every reason to expect.

Immigration continues in a constantly increasing ratio. Nearly all are farmers with their families seeking this as a home, and all remain here.

The very favorable laws governing the disposition of land here by this government attract actual settlers. Heretofore, and now, no capitalists have been interested by public works or speculation in attracting attention to this Territory. It had to depend upon its own agricultural population, which was small and had poor mail facilities. It was difficult of access by railroad. Now a railway is completed to our border and visitors are numerous. Wealth is attracted by a variety of opportunities. The number of immigrants has greatly increased this year, and all these have seen most successful agriculture. They have observed, also, the wonderful adaptation of this country for grazing and raising sheep and cattle. The immigrants come from various States, and the common story of this year's success will greatly accelerate the settlement. When people know our lands and climate are as fine, our markets as good, they will come here and take land for nothing, instead of buying it from speculators further east; while under the system here farms are small and adjoining each other, giving close settled neighborhoods and advantages of society.

I suggest in this connection, also, that it would seem prudent to enlarge the jurisdiction of the local land office at Vermillion, so that it should include all the surveyed portion of the Territory on the Missouri River west of here. There are now two or three ranges, part of which is surveyed, wherein some settlements are being made. The settlers can file their declaratory statements in this office and prove up and acquire title until a new office is established, or the region included in this district.

There is another subject more immediately connected with the duties of this office, which has been forced upon my attention. The duties to be here performed are almost entirely professional and technical. There are always numerous applicants for every place, embracing every grade of information and capacity. Young men who have no capacity for ordinary commercial business, yet expect places in an office which requires the highest skill and fitness for the best interests of the government. They are recommended by gentlemen as a political or social favor, and pressed for places which they seem to deem as sinecures, not requiring skill or effort.

One skilled and instructed clerk can perform more duty correctly than three unskilled ones could perform in a very indifferent manner. While the skilled and experienced employes perform their work exactly and correctly alone, the inexperienced one requires half the time of a chief clerk or other person to keep him straight. While there is now no legal difficulty in the way, that I am aware of, to prevent a surveyor general from exercising a free privilege in selecting men fitted for the duty, I yet have sometimes wished that the laws or instructions reached this matter; also, that he should be encouraged or justified in selecting a force of competent persons to perform these duties, that it might be well known and understood that they hold their places because of their competency, rather than because of their politics solely. This principle has been, to some extent at least, applied to deputy surveyors, and could, without injury,



be still more strictly applied in accordance with instructions. There is a great variety in persons applying for contracts. Some have education and fine experience; some have education only, and these are over-confident, and an instance has been known in this Territory where even a university professor, of fine talent, practically failed in the field. Others have more or less experience in various subordinate capacities, with that only for instruction. These are not apt to perform their work in a neat, thorough, and satisfactory manner, and leave largely more labor upon the office. If all were of the first class mentioned, the present amount allowed per mile is none too much as pay for their skill. If all are of the latter class, the pay is too high. This class includes those who, with but little professional character, depend more upon political influence, and seek a contract as a temporary engagement for profit. The well-skilled and devoted professional man has no need of such influence, if his character is good. I have endeavored to employ the best of those coming within my reach. Were it not that the surveys are every year growing more distant and more expensive, particularly those on the Red River of the North, I would recommend a slight reduction on township and subdivision lines. The standard lines require much more skill, expense, and experience. However, the honorable Commissioner is aware that professional pay of all kinds is high; and this should be when the deputy is well skilled.

I simply suggest the consideration of this subject generally, and if it should seem best to act upon it, I also respectfully suggest a reasonable discrimination in favor of the Red River region, where much work will be needed next year. I expect to give this matter a careful examination, aided by more experience, and shall then be able to speak more accurately, and also to apply these principles to the contracts let as the instructions direct.

Papers accompanying and forming a part of this report: A, estimates for the surveying service in this district; B, abstract account of the incidental expenses of the surveyor general's office for the year ending June 30, 1869; C, statement showing the number of townships surveyed in Dakota, and area of land therein.

I am, very respectfully, your obedient servant,

WM. H. H. BEADLE,  
*Surveyor General.*

Hon. JOSEPH S. WILSON,  
*Commissioner General Land Office.*

A.—*Estimates of appropriations required for continuing the public surveys in the Territory of Dakota, for the salaries of the surveyor general and the clerks employed in his office, (as per act of March 2, 1861,) and for the incidental expenses of the office for the fiscal year ending June 30, 1871.*

For surveying township lines .....	\$10, 000
For subdividing townships .....	30, 000
Total for continuing surveys .....	40, 000
For incidental expenses of office .....	2, 000
For salary of surveyor general .....	2, 000
For salary of chief clerk .....	1, 600
For salary of draughtsman .....	1, 300
For salary of assistant draughtsman .....	1, 200
For salary of two clerks .....	2, 200
Total for salaries .....	8, 300

WM. H. H. BEADLE,  
*Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*Yankton, D. T., August 10, 1869.*

B.—*Abstract statement of the incidental expenses of the surveyor general's office for the fiscal year ending June 30, 1869.*

For the quarter ending September 30, 1868 .....	\$306 95
For the quarter ending December 31, 1868 .....	477 75
For the quarter ending March 31, 1869 .....	218 25
Total expended for three quarters .....	1, 002 95

WM. H. H. BEADLE,  
*Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*Yankton, D. T., August 10, 1869.*

C.—List of townships surveyed in the Territory of Dakota, from July 1, 1868, to June 30, 1869.

No.	Township.	Range.	Area.	No.	Township.	Range.	Area.
			Acres.				Acres.
1	161 N.....	50 W.....	2,477.35	24	99 N.....	66 W.....	20,898.12
2	162 N.....	50 W.....	35.10	25	101 N.....	67 W.....	23,042.18
3	161 N.....	51 W.....	22,758.75	26	102 N.....	67 W.....	23,032.36
4	162 N.....	51 W.....	19,543.59	27	103 N.....	67 W.....	22,940.30
5	161 N.....	52 W.....	23,067.36	28	101 N.....	68 W.....	23,034.33
6	162 N.....	52 W.....	23,088.19	29	102 N.....	68 W.....	22,837.23
7	163 N.....	52 W.....	23,092.81	30	103 N.....	68 W.....	22,936.03
8	164 N.....	52 W.....	5,669.92	31	104 N.....	68 W.....	23,406.95
9	161 N.....	53 W.....	23,086.47	32	101 N.....	69 W.....	23,021.21
10	162 N.....	53 W.....	23,031.21	33	102 N.....	69 W.....	22,974.45
11	163 N.....	53 W.....	23,026.88	34	103 N.....	69 W.....	22,935.95
12	164 N.....	53 W.....	5,657.54	35	104 N.....	69 W.....	23,443.29
13	161 N.....	54 W.....	22,978.99	36	101 N.....	70 W.....	23,061.27
14	162 N.....	54 W.....	22,933.44	37	102 N.....	70 W.....	23,006.23
15	100 N.....	60 W.....	18,894.69	38	103 N.....	70 W.....	19,327.87
16	100 N.....	61 W.....	18,839.28	39	104 N.....	70 W.....	23,342.05
17	100 N.....	62 W.....	18,906.61	40	101 N.....	71 W.....	5,717.30
18	99 N.....	63 W.....	23,075.10	41	102 N.....	71 W.....	14,997.85
19	100 N.....	63 W.....	18,909.94	42	103 N.....	71 W.....	22,914.43
20	99 N.....	64 W.....	23,091.36	43	104 N.....	71 W.....	15,002.73
21	100 N.....	64 W.....	18,986.84	44	102 N.....	72 W.....	2,127.00
22	99 N.....	65 W.....	23,013.71	45	103 N.....	72 W.....	4,901.22
23	100 N.....	65 W.....	18,904.49	46	104 N.....	72 W.....	787.13
				202	Previously reported ..		3,531,765.07
Total townships surveyed, 248.....							4,384,522.17

WM. H. H. BEADLE,  
Surveyor General.

SURVEYOR GENERAL'S OFFICE,  
Yankton, D. T., August 10, 1869.

### No. 18 E.—Annual report of the surveyor general of Nebraska.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, Neb., August 21, 1869.

SIR: In accordance with your instructions of April 14, 1869, I have the honor to submit herewith the annual report of this office, in duplicate, showing the condition of the public surveys, and the operations of the office in the district of Iowa and Nebraska during the fiscal year ending June 30, 1869.

A, among the accompanying tabular statements, gives the amount expended for salaries of surveyor general and clerks during the fiscal year aforesaid.

B gives the amount expended for rent of office and incidental expenses during the same term.

C shows the extent and cost of surveys executed in Nebraska during the fiscal year.

D gives the description and area of land for which township plats and descriptive lists have been furnished to the Omaha land district, Omaha, Nebraska, during the year.

E is a similar table, giving the description and area of land for which township plats and descriptive lists have been furnished to the South Platte River land district, Lincoln, Nebraska, during the same fiscal year.

F also gives the description and area of land for which township plats and descriptive lists have been furnished to the Nemaha land district, Beatrice, Nebraska, during same period.

G gives the description and area of land for which township plats and descriptive lists have been furnished to the Grand Island land district, Columbus, Nebraska, during the same period.

H shows the estimated expense, number of miles, and character of the surveys for which contracts have been entered into, which are now being executed, and which are properly chargeable to the appropriations of July 20, 1863, and March 3, 1869.

I is an estimate of sums required for the further extension of the public surveys in the State of Nebraska during the fiscal year ending June 30, 1871.

J is an estimate of sums required for office expenses during the same fiscal year, ending in 1871.

K is a statement of the amount of regular office work performed from August 1, 1868, to March 1, 1869, being seven months, by one chief clerk, one draughtsman, and two copyists, as compared with work to be done by the same force during the fall and win-

ter of 1869-'70, showing the necessity of additional force in this office, viz: one draughtsman and one copyist.

L is a map of Nebraska on a scale of twelve miles to the inch, on which, in addition to the standard and exterior lines, are ruled all section lines surveyed and established, and all now being surveyed, with a distinctive mark, and all proposed surveys of subdivision lines are indicated by dotted lines. This mode of construction seems to give a view of the public surveys, their present condition and proposed extension, which may be comprehended at a glance. The limits of civil organizations by counties, of the two railroad grants extending across the State, of the Indian and military reservations, and of the half-breed lands, as also of the five United States land districts, are all given; and as these maps finally emanate from the General Land Office in published form, and are much sought for, and have proven very useful, much care has been taken to render this complete and reliable. And a similar one has been made for use in this office in preparing a map for another year.

#### CONDITION OF THE PUBLIC SURVEYS.

All surveys contracted for in 1868 out of the appropriation of July 20, 1868, have been completed, both as to field and office work, except those of Messrs. Currence and Humason, contract and bond No. 8; William Hardin, No. 11; and William E. Daugherty, No. 13. Messrs. Currence and Humason, after seeing their flagman killed and scalped by Indians, without the power of defense, from inadequacy of arms and paucity of numbers, were driven from the field with the loss of their wagon, after completing only one township of subdivisions on the Republican River. Mr. Hardin had his teams stolen by the red prairie robbers, and being attacked by severe illness was forced to suspend work for the season. Mr. Daugherty, after struggling some time against sickness, was compelled to leave seven townships unsurveyed. The suspension of Mr. Hardin's work, and his illness, were undoubtedly superinduced, to a great extent, by the distress and perplexity ensuing from the loss of his teams and the constant danger of further attacks of the merciless Indians, and was thus compelled to leave four of his townships unfinished. The time for completing the work in these contracts, amounting in all to twenty-four townships of subdivisions, has, with the written consent of the sureties, been extended, and these deputies, with renewed courage and a little more powder, are now in the field completing the work. One of Mr. Hardin's township surveys, however, has been cancelled, on account of being in excess of half the penal sum of his bond, in accordance with your instructions of June 21, 1869.

Contract No. 16, of Messrs. Wiltse and Lonsdale, issued April 27, 1869; contract No. 17, of Messrs. Allason and Kelsey; and contract No. 18, of Messrs. Park and Campbell, both issued April 29, 1869, are also properly chargeable to balance of appropriation of July 20, 1868. Two township surveys of subdivisions in Messrs. Wiltse and Lonsdale's contract, and three in Messrs. Park and Campbell's, have also been cancelled, in obedience to your instructions aforesaid and for the same reason.

These deputies are now in the field, and their districts of survey embrace a very important portion of Nebraska, extending along the alluvial lands of the Platte, and a large share of these lands will inure to the Union Pacific Railroad Company.

Two of the most southern of Messrs. Allason and Kelsey's standard parallels, from the isolated position of their district, as seen in the accompanying map, must be surveyed and established in reverse of the prescribed mode, and without the usual check as to course and distance—a fact to be regretted, unless extraordinary tests are applied in the progress of the lines; but these deputies have been particularly instructed on this point, and it is hoped that, as a result, there will be no excessive fractions south of those lines to mar the symmetry of the public surveys. The work of this season will give that result, whatever it may prove.

Eleven contracts have been entered into, for the surveys of this season, chargeable to the appropriation of March 3, 1869. In selecting the districts embraced in these contracts I have endeavored to observe a rigid adherence to your instructions of May 18, 1869, and those of August 7, 1868, applying a reasonable share of the means under my control to the extension of the surveys along the Union Pacific railroad grant, extending the subdivisions where the pioneer settlements now, or soon will, appear, and advancing the standard and exterior lines preparatory to the work of subdivision in 1870.

If the parties now performing this work can escape the interference of the savages of the plains, or successfully defend themselves when attacked, with the arms and ammunition furnished by the general commanding department of the Platte, these surveys will develop and determine some very interesting features and important points in this young but thrifty State, among which, not the least, are the broad Platte, with its wide prairie bottoms and that iron rim, the Union Pacific railway, in extent a prodigy, in rapidity of construction the wonder of the West, and in tortuous cañons and snowy summits successfully traversed, a lasting monument of American energy and engineering skill. The locality and limits of the military reservations of Fort McPherson and of Fort Sedgwick will be defined. The question whether Julesburg is in Col-



orado or in Nebraska will be answered. The valley of Lodge Pole Creek and that of the Republican will be developed with certainty, while it will be ascertained beyond cavil whether the lands on which the Union Pacific Railroad Company have constructed their numerous station-houses and other buildings are in odd or even numbered sections, and this important, though vexed question, be definitely settled. And soon will the borders of Wyoming be reached with the surveyor's chain, not far from the foot of the Black Hills.

Military escorts have proven to be more of a hindrance than a protection to surveyors, and during this season they have preferred arming themselves, taking out full parties, and trusting to their own vigilance and courage for self-defense.

For the survey of the boundary between Nebraska, Colorado, and Wyoming, \$4,800 were appropriated July 20, 1868, which proving inadequate, \$3,200 more were appropriated March 3, 1869. On the 29th May, 1869, I contracted with Oliver N. Chaffee, esq., astronomer and surveyor, formerly of the North and Northwest Lake Survey, for the establishment of this important boundary on specified lines of latitude and longitude, the latter of which can now be readily and accurately determined by the data obtained from the labors of the United States Coast Survey corps at Omaha. Special instructions have been given him as to some of the details of field work, that the boundary may, in the future, be made available as a line of the United States public surveys. Accuracy of distance is to be tested with instruments of late construction for that special use. This survey will terminate at the intersection of longitude 27° west of Washington with latitude 43° north. The north boundary of Nebraska will therefore remain undetermined for the present. This fact is to be regretted, as immigration is already pushing westward along the Niobrara and Kewa Paha Rivers, and while the boundary dividing Nebraska from Dakota is unmarked in the field it would be imprudent to push the surveys in that direction, there being no surveyed line to close on. For this reason it is hoped that Congress may be induced to appropriate a sufficient sum speedily to establish this boundary, which, in extent, will be very nearly two hundred and twenty-seven statute miles, the cost of survey, at \$25 per mile, making the sum of \$5,675, necessary to defray the expense of the field work involved in this important service.

#### OFFICE WORK.

Statement No. 11, accompanying this report, gives a condensed view of office work performed during the winter of 1868-'69; and the larger portion of regular office work accomplished during the fiscal year is, of course, comprised in this and other papers herewith given; but the miscellaneous work has lately consumed much of the time and labor of this office. And not the least onerous duty has been the computation involved in obtaining the cost of survey and office work upon lands inuring to the Union Pacific Railroad Company, as the peculiar structure of the act of Congress requires a double estimate to be obtained proportionally on every separate township in which that gigantic grant of land occurs.

The simple words "three cents per acre" would have saved acres of figures. The other miscellaneous work of the office, such as the preparation of contracts and bonds in quadruplicate, special instructions in duplicate and recording them, diagrams, outline plats and field-notes for the guidance of deputies in the field, examination of the field-notes of the public surveys as they are returned by the surveyors, official correspondence and record of same, making out and recording the accounts of deputy surveyors, the quarterly accounts and certificates to vouchers, have taken up much of the time of the employes. The annual report itself in duplicate, and requiring a record if made a true exhibit of the facts, requires much research and consumes much time in its preparation. The general statistics of this surveying district, lately required by the Interior Department, and embodied in this report, have required examinations outside of the records of this office, in other departments, where they could only be obtained by persevering effort.

The Union Pacific Railroad Company have sent to this office five duplicate certificates of deposit (Nos. 200 to 204, inclusive) for cost of survey and office work on 154,127.03 acres of land inuring to them by act of Congress, amounting to \$2,757 54 for survey, and \$584 69 for office work, being in the aggregate \$3,306 23, based upon the computations of this office upon their lists furnished by their agent. These deposits are made in the Omaha National Bank to the credit of the United States, and my certificates as to the accuracy of the amounts have been added to the lists furnished to the Register of the United States Land Office, Omaha land district, at West Point, Nebraska.

P. C. Nisson, of St. Helena, Nebraska, has also filed in this office his triplicate certificate of deposit, No. 145, of \$100, in the Omaha National Bank, on account of a fragmentary survey to be made in township 33 north, ranges 1 and 2 east of the sixth principal meridian, under the provisions of sec. 6, p. 5, of the supplemental instructions of the Commissioner.

It may be properly added here, that this survey has lately been made, approved, platted, and paid for.

In selecting the surveys to be completed in the fiscal year ending June 30, 1871, I have been governed by the various interests to be subserved. The Union Pacific Railroad Company having a very large amount of lands inuring under acts of Congress of July 2, 1862, and July 2, 1864, have called persistently for the survey of the same, asserting that as these lands were donated to them by Congress on conditions which the said company claim to have fulfilled, there is no just reason why they should longer be withheld. I have, therefore, in accordance with the spirit of your instructions of May 13, 1869, estimated largely for the survey of these lands, believing that settlements along the valley of the Platte River would be hastened and facilitated thereby, and the public good correspondingly promoted.

Along the fertile valley of the Republican, and the equally fertile banks of the Niobrara, surveys have been projected, for the reason that these lands are in demand by settlers. A number of claims, I am informed, have been surveyed by and at the expense of private parties, along the latter river, in advance of the public surveys, taking the second guide meridian west, and the eighth standard parallel north, as a basis; and already the settlements in that region have outstripped the surveyor's chain.

The amount of appropriation necessary to carry out the estimates forwarded to the General Land Office, in accordance with your instructions of April 14, 1869, reaches nearly twice the sum of that made March 3, 1869, but is really demanded by the urgency with which these surveys are called for; and it is hoped that the honorable Commissioner will recommend to Congress the granting of the sums asked for the purposes specified.

In this connection I would respectfully call the attention of the honorable Commissioner of the General Land Office to the fact that the public surveys are rapidly reaching a section of country entirely destitute of timber, and in fact several contracts this season lie in portions of the district where there is no timber whatever large enough for a corner post. This matter is important, from the reason that there is reasonable ground for fearing that deputies may not fully carry out the instructions in relation to "posts in mounds," as required in the printed manual, and the surveys may, in consequence, be less permanently established.

The only method which would be at all likely to obviate this difficulty and secure a faithful performance of the duties involved in each contract, would be a careful examination of the work in the field, by competent examiners, who could be selected by the surveyor general for their integrity.

The distance which the necessary posts of prescribed size will have to be hauled, as a matter of course will detract largely from the emoluments of the deputies; and if surveys similar in character, in those portions of the district where timber was sufficiently abundant to supply the wants of the surveyor and the requirements of the law, were worth as much as is now paid per mile, it is a fair inference that the much more difficult and expensive labors resulting from the use of the necessary additional teams to haul posts in the present field of operations, coupled with the rapidly increasing distance from a base of supplies, and the time of employes lost in traveling to the contract ground, should in some measure be compensated by an increase of pay per mile run.

It is thought here that a distinction should be made between those sections of country so destitute of timber as to necessitate the hauling of posts from a distance, and those sections where timber of a proper size is sufficiently abundant to supply the wants of the deputy.

No doubt the experience and discretion of the honorable Commissioner will show him the necessity of regulating the rates per mile in those portions of the district where no timber can be found, and also of adopting measures to secure a faithful compliance with the law and prevent fraudulent surveys.

In this connection it is believed that it would be feasible, and entail no additional cost to the United States, to introduce a clause in surveying contracts in the treeless portion of this district, whereby the contractor should be bound to cause his chainmen to deposit three to six seeds of some hardy and rapidly growing tree, as the buberry, coffee-bean, or honey locust, at every tally. No time would be lost, for when the hind chainman came up with his tally of pins they could be thrust into the yielding soil, a sufficient hole or holes made to plant the seeds in, and after planting, a slight blow from the heel of the boot would cover them. By this means (should the seeds grow) six additional objects *in line* would be secured between section corners; and from a long experience on the plains, I give it as my unhesitating opinion, that in the large majority of cases the result would be a success. A popular fallacy, I admit, exists against the possibility of timber being produced on the elevated prairie; but having traversed this State in every direction, I have been unable to discover a spot where some kind of timber could not be successfully raised. It is true that there are small and narrow tracts of country, limited in extent, which are nothing but drifts and dunes of sand, but even in these the pine would flourish. The experiment is, at least, worth trying; for while it causes no additional expense in the surveys, it will, if successful, demon-



strate the feasibility of covering the prairies with forests, will enhance the value of the public domain and insure a more speedy sale and settlement, as also more moisture in the agricultural lands.

The rapid Missouri, just above the mouth of the Big Sioux, cutting a new channel across the sandy alluvion of Dakota, has, in defiance of all lines of civil jurisdiction, thrown a peninsula of several hundred acres of the Dakota lands (already surveyed) upon the Nebraska side; and after a careful preliminary survey to determine these facts, made under your instructions of February 12, 1868, by J. B. Park, deputy surveyor, in April and May, 1868, from the features shown by the map and report of this office on Mr. Park's survey, it is announced as the opinion of the General Land Office that the lines separating the political jurisdictions remain the same as when established by acts of Congress of May 30, 1854, and March 1, 1867, viz: in the "middle of the old bed of the river."

"A line of demarkation" (in fact the State line) between Nebraska and Dakota has therefore been ordered to be run and marked, in what was once the main channel, and is now "arable land, to be surveyed and disposed of as part of the public domain, being mostly dry, alluvial bottom, with a thrifty growth of young cottonwood." Upon this tortuous State line, made equidistant from the meanders of either side, the public surveys of a State and Territory are to be closed, and the fractional areas terminate; and the old lines of traverse are to be preserved as a border for accretion. High water has hitherto prevented the consummation of this difficult fragment of survey, but as the Missouri is now subsiding, it is proposed, soon, to carry out your instructions thereon, dated March 10, 1869. For the further elucidation of this subject, I have caused a sketch of Park's preliminary survey, with the proposed lines of survey, and the contiguous fractional lands on each bank, to be drawn for reference. The process of survey in this case will have to be very carefully prescribed, involving, as it does, the determining of many distances by offset, traverse, or triangulation.

#### HOSTILE INDIANS.

The paucity of troops at the military posts within this district, and the many onerous duties entailed upon them, render it exceedingly difficult to obtain escorts for the purpose of protecting surveying parties; and for this reason, fully appreciating the annoyances which the general commanding department of the Platte has to contend with, I have not requested him to furnish any troops to United States deputy surveyors. In fact, past experience demonstrates that the activity of the surveyor is seriously retarded by numerous accidents, delaying the movements of troops, when acting as escorts, and the deputies prefer protecting themselves and trusting to their individual efforts, to escape injury from marauding bands of Indians. The plan adopted this season was to obtain arms from the chief of ordnance, at Omaha, for each surveying party, such parties procuring these arms on their own requisition, and fully understanding that the moneys accruing in the hands of the United States for their services would be held responsible for the safe return of the arms to the ordnance officer at Omaha.

Major General C. C. Augur has kindly and promptly co-operated with this office, in thus furnishing means of protection to deputies, and to his action is owing the fact that no party which was supplied with arms, through his assistance, has suffered at the hands of hostile Indians. Several parties are now in the field without arms, owing to the fact that the honorable Commissioner has declined to sanction the action of this office, in assisting deputies to obtain arms, since the 29th June, 1869. It is to be hoped that no harm may befall them; nevertheless, even though unattacked by Indians, the employes of these unarmed parties cannot help feeling a lack of confidence in their ability to successfully defend themselves if beset, and in consequence, I have no doubt, some of them may desert their employers, and thus seriously retard the progress of the surveys. Removed from all chance of assistance in the event of being attacked, the deputy surveyor has to rely on the courage of his small party and the superiority of the arms in its hands, for successfully resisting the attempts of marauding parties of hostile Indians to destroy it; and unless some means, without additional cost to the United States, such as I have used, be adopted, I have no doubt, from personal experience on the plains, that this office will learn of some of the parties who are unarmed and have been sent into the field, being wantonly massacred by hostile Indians; while all those who are armed will be able to defend themselves and escape so lamentable a fate.

The killing of a few men renders the hiring of others very difficult, and capable parties unwilling to run so great a risk without suitable compensation, the deputies are thereby embarrassed and put to excessive outlay for wages, all of which it is believed, could be easily prevented, were this office allowed to approve the procuring of arms from the proper ordnance officer, by deputies, for which the parties receiving them should be held responsible, as has been done in the early part of the present season.

The month of August is almost invariably the season when the buffalo is in greatest abundance on the plains, and, in consequence, the hunting parties of the various tribes



of Indians are more likely to be encountered by surveyors during this month than at any other period. It was in August of last year that Messrs. Currence and Humason lost a man murdered by Indians, and I fear that this month will not pass without similar atrocities.

So long as the buffaloes traverse the plains included in this surveying district, just so long will Indians follow them for the purpose of securing food for the ensuing winter; and, consequently, the surveying parties in the field have necessarily to run the risk of encountering these marauding bands, and no other means can be adopted to protect them effectually except arming them thoroughly with the best class of repeating long-range fire-arms.

Whether the deputies will go to the expense of purchasing such costly arms remains to be seen. Thus far they have declined to do so, asserting that their profits from the work would not permit such an outlay.

#### STATISTICS AND GENERAL INFORMATION.

In reply to the interrogatories in your circular of July 21, 1869, I have to say that while many of the answers are based on positive knowledge, some of them, from the very nature of the questions, will involve estimated amounts; but it has been the constant object of this office, in making up the information sought to be obtained, to exclude all exaggeration, and render the statements as near the actual truth as it was possible to do under the circumstances.

The extent of country embraced in this report, coupled with the fact that many portions of it have never received the impression of a white man's foot, compels the adoption of inferential reasoning. Had sufficient time been allowed in the preparation, it is believed that much information, now excluded for want of testimony on which to base it, could have been substantiated and incorporated.

The total area of this district, which is coequal with the State of Nebraska, comprises 75,905 square miles, equal to 48,636,800 acres, and is bounded on the east by the sinuosities of the Missouri River; on the south by the fortieth degree north latitude; on the west by the twenty-fifth degree of longitude west from Washington, as far north as the forty-first degree of north latitude; thence west, along this last parallel, to the twenty-seventh degree of longitude west from Washington; thence on the west by the twenty-seventh degree of longitude west from Washington to its intersection with the forty-third degree of north latitude; thence on the north by this last-named parallel, east to its intersection with the Keya Paha River; thence down said river to its confluence with the Niobrara or Running Water, and along the mid-channel of this last-named river to its confluence with the Missouri River.

This tract of country, once known in our schools as the "Great American Desert," has the appearance to the eye of an immense ocean suddenly transformed into soil—the rolling, billowy surface reminding the observer most forcibly of the "vasty deep." It is now the well settled opinion of most scientific gentlemen who have traversed these plains, that this entire surface was at one time the bottom of a great inland sea. Near the up-lift of the Rocky Mountains is found a belt of sandy country, of irregular contour, to some extent defining what was once the shore of this vast body of water. And also, in isolated localities, no doubt at that time islands, capes, and other geographical boundaries of the unsubmerged portions of the country are shown.

At the present time these sands bear the name of hills or dunes, and there is but little doubt in the minds of most investigators that these "sand-hills" have been formed by the prevailing winds, piling up the dry and loose materials of which they are composed into their present singular and picturesque forms. It is noticeable that to the prevailing winds they nearly invariably present the longest slopes, while the opposite sides are generally very steep. In this manner, with but a slight effort of the imagination, their appearance resembles huge billows, all apparently traveling in the same direction. Far to the south, and in fact on both sides of the Rocky Mountain upheaval, these "sand-hills" attest the presence of superincumbent waters over the now dry land.

Every grain is a witness to the fact that the disintegration and erosion (which is still going on) in the great backbone of this continent, in ages so remote as to be incalculable, has furnished these particles to be swept down by mountain torrents to the waters which at that time covered this district, and were steadily depositing the silts and slieds which to-day are yielding such bountiful harvests to our western farmers.

Sloping from the great continental divide to the east and south, at an inclination, for the first fifty miles east, of fifty-one feet per mile, the country gradually becomes more level, the rapidity of descent gradually changing, each succeeding one hundred miles, as follows: 18 feet, 9.9 feet, 6.85 feet, 6.8 feet, and 5 feet, showing a curved surface from the Missouri River to the summit of the mountains passed by the Union Pacific railroad.

East of the last-named river, the central portion of the State of Iowa is uplifted, so

as to form a well defined water-shed, on its western slope toward the Missouri, and on its eastern side toward the Mississippi.

The eastern boundary of this district, it has already been stated, is formed by the Missouri, which flows through a vast bottom, bounded by high bluffs of clay, which, from analysis, would seem to indicate a trapezian origin. Generally, the course of the river hugs the right bank, leaving, by far, the largest portion of the "bottoms" on the eastern shore. The river itself is one great series of sand-bars, and although navigable for thousands of miles, the shifting character of these bars renders the employment of the most skillful pilots a necessity. In these sands, carried down to the Missouri by its tributaries, we see to-day the same geological agency at work, though on a much smaller scale, which, no doubt, at a remote period, deposited the "sand hills" of the plains.

From careful soundings, made at various points along this stream in this State, it is now a pretty clearly demonstrated fact that this great river flows along the line of a rupture in the subjacent rocks.

The engineers employed by various railroad companies, for the purpose of ascertaining the best mode of constructing piers, and the best points for bridges across the river, give uniform testimony, settling the fact that there is a great and wide fissure in the underlying rocks, beneath the river bed. The rock has been found on the right bank, but in extending lines of soundings across the river, it has invariably dropped off perpendicularly and suddenly, at from one to two-thirds of the distance toward the left bank. Estimating the distance of the western edge of this fissure from the rocky exposures at the base of the bluffs on the right bank at eight hundred feet, and assuming that the distance from the bluffs on the left bank to the eastern edge of the fissure is coequal, the width of this chasm would be found to average nearly two miles.

The existence of this fissure is a fact. The width of it is still unascertained; but I respectfully call the attention of the honorable Commissioner to this point, for the purpose of correcting the impression that the dip of the underlying rocks of this State is to the northwest. The dip is, and must be, to the southeast. The subterranean forces which uplifted the superincumbent rocks, and, thrusting them asunder, gave to this continent its principal range of mountains, necessarily elevated the overlying beds at the west, as is shown in the general slope of the country and its topography; but that some portions of the exposed rocks along the Missouri should indicate a dip to the west must be received as a local phenomenon dependent on the forces exerted at the time that the fissure in which the Missouri River flows was made, and resulting in dislocations of a limited extent, but not marring the general geological effect of the protrusion of the Rocky Mountains. There is the utmost confidence in the minds of many gentlemen, of high scientific attainments, in this State, that the largest coal basin yet discovered will be found in the valley of the Missouri River. The upturned edges of the carboniferous rocks along the Black Hills, and the denudation of similar strata in Iowa, point, in their opinion, unerringly, to a vast body of coal, extending between these points. It is, perhaps, not the province of a report of this character to enter largely into the geology of the country treated of; yet, the accumulating evidence, resulting from the researches of scientific men, seems so conclusive of the positions taken herein, that they are submitted in this crude and brief form, with the view of calling attention to what seems to be a near approach to the solution of the great question agitating the public of this State in reference to the supply of fuel.

1. The number of acres of agricultural lands in this State reach an area of 23,959,356.58 acres, and are divided into the following grades: 13,700,000 acres of the first class, including 1,200,000 acres of the bottom land and 12,500,000 acres of the equally productive portions of the upland prairie; 3,000,000 acres of the second class, comprising those portions of the State which are equally as productive as the first class, but are broken by water-worn drains; and 7,259,356.58 acres of the third class, comprising those portions of the land of this State subject to drought, and containing more siliceous and less decomposed vegetable matter than the second class.

The mineral lands of Nebraska, as far as discovered, show only some small coal deposits, and some extensive saline springs.

The coal lands, if such a term can be applied to the present thin beds, which are partially worked, underlie the entire southeastern portion of the State, in the counties of Richardson, Pawnee, and Johnson. In Cass and Nemaha some narrow veins have been discovered, but too thin to warrant their being mined to advantage. The entire force employed, as far as I can learn, is very small; some twelve persons being engaged in drifting into a vein two feet in thickness, in township 1 north, range 12 east, in Pawnee County; and about the same force is mining a similar vein, in all likelihood the same one, in township 1 north, range 13 east, in Richardson County. This coal is sold at the mines for fifteen cents per bushel, and is very fine. The development of this branch of industry is in its infancy here, and does not warrant as yet the title of mineral lands, as applied to other portions of the globe. Nevertheless, I have no doubt when capitalists will have associated together for the purpose of settling the coal



question in Nebraska, at a depth of probably six hundred to eight hundred feet, large workable deposits of coal will be found.

The saline lands of the State comprise 46,080 acres, containing twelve springs or basins, located as follows:

- No. 1, the main basin, in section 21, township 10 north, range 6 east, has two springs.
- No. 2 is in southwest quarter of section 14, township 10 north, range 6 east.
- No. 3 is in south half of section 29, township 10 north, range 6 east.
- No. 4 is in southwest quarter of section 5, township 10 north, range 6 east.
- No. 5 is in north half of section 7, township 9 north, range 6 east.
- No. 6 is in northwest quarter of section 8, township 9 north, range 6 east.
- No. 7 is in northwest quarter of section 3, township 9 north, range 6 east.
- No. 8 is in north half of section 32, township 11 north, range 7 east.
- No. 9 is in southeast quarter of section 30, township 11 north, range 7 east.
- No. 10 is in southwest quarter of section 24, township 11 north, range 7 east.
- No. 11 is in north half of section 2, township 11 north, range 6 east.

All of these springs are within a radius of ten miles of Lincoln, the seat of State government. In basin No. 2 a well is being sunk, and by terms of lease is to be sunk one thousand feet, unless brine of sufficient strength is found at less depth. The main basin contains three hundred acres. The salt is made entirely from surface water, the strength of which is said to be 50° of gravity, or 16½ per cent, 33½ being saturated solution. This water, when exposed to the sun forty-eight hours, becomes strong enough to make one barrel of salt to three barrels of water.

All salt heretofore made has been by boiling, and only to the extent of 50 or 60 barrels per day, at a cost of \$1 50 per barrel. The company leasing this basin is required to improve to the amount of \$10,000 the first year, which will be made in building vats.

It is said that enough brine can be had to make, by solar evaporation, 1,000 barrels per day, at a cost of 25 cents per barrel.

The salt made is the purest in the world, analyzing 98.30 per cent. of purity, or curative power; being 7.10 per cent. purer than Turk's Island salt.

The number of hands employed is four, and the present capital is \$16,000.

This important branch of industry is now, for the first time, receiving proper attention; and as the construction of railroads in the State will soon furnish ample means of transportation, there can be but little doubt that the manufacture of salt will speedily attain full proportions, and contribute largely to the material wealth of the State.

2. The grazing lands of this State contain 23,251,090.73 acres, and consist of those portions of the country where the grasses are sufficiently abundant to maintain stock in a good condition, but are divided into two classes; the first, comprising 12,682,410 acres, is sufficiently watered to provide against suffering from the drying up of the springs and smaller streams; and the second class, comprising 10,568,680.73 acres, has considerable water in the drains and small streams during spring, fall, and winter, but which becomes arid in the heat of summer.

3. The grazing lands covered by private claims do not exist in this State.

4. The swamp lands of Nebraska cover 61,029 acres, and are scattered through ninety-five townships, as per accompanying schedules; 48,824 acres of these swamp lands are considered by this office to be reclaimable, and the remainder irreclaimable, without the expenditure of infinitely more money than the best agricultural lands in the State are worth to-day.

5. The sterile lands of Nebraska, excepting the "sand hills," are so only in name, although it is true of that portion of the State immediately east of Wyoming and north of Colorado, that in the summer there are seasons when the soil becomes so dry that the grasses wither and seem to dry up. This section of country, however, is susceptible of irrigation by means of artesian wells, and I have little doubt that when the adventurous tide of immigration shall have reached the boundaries of this section, the ingenuity and enterprise of man will supply all deficiencies of water, to the extent of rendering it fully as habitable as other portions of the State.

The great elevation of the mountains, immediately west, seems to assure us that copious and bountiful streams will be brought to the surface of these plains by means of properly-constructed artesian wells.

6. The lands broken by mountains must be sought elsewhere than in Nebraska. Although I have traversed nearly every part of the State, in all directions, I know of no portion that would bear so dignified an appellation as "mountain."

7. The timber lands of Nebraska, though largely disproportionate to the prairie region, cover a larger area than at first would be presumed. I have caused every township in the State to be minutely examined, and the area of timber in each to be carefully calculated, and the result proves that there are 429,885 acres of timber land in the State, the largest part of which lies east of the sixth principal meridian, and along the Platte, Republican, Loup, and Niobrara rivers.

8. The number of cities and towns in the State amounts in the aggregate to two hundred and twenty-two, of which, perhaps, not more than twenty-two should be entitled cities at the present time.



The population of the entire State cannot be ascertained with definite certainty until the taking of the State census in April next; but assuming the vote of the different counties at the presidential election last fall as a basis, we should have a population as follows by counties.

The number of persons whose residence in the State was too short at the date of election to entitle them to suffrage was quite large, reaching very nearly 18 per cent. of the voting population, while the number registered exceeded the number of votes polled by 15 per cent. of votes recorded, giving the following approximate result:

Counties.	Votes polled.	Absentees.	Non-voters.	Total.	Rate of five persons per vote.
Buffalo .....	32	5	6	43	215
Burt .....	456	68	82	606	3,030
Butler .....	50	7	9	66	330
Cass .....	1,220	183	220	1,623	8,115
Cedar .....	98	15	18	131	655
Cuming .....	232	35	42	309	1,545
Dakota .....	299	45	54	398	1,990
Dixon .....	137	20	24	181	905
Dodge .....	502	75	90	667	3,335
Douglas .....	3,454	518	622	4,594	22,970
Gage .....	366	55	66	487	2,435
Hall .....	237	35	42	314	1,570
Jefferson .....	96	14	17	127	635
Johnson .....	415	62	75	552	2,760
Kearney .....	48	7	8	63	315
Lancaster .....	460	69	83	612	3,060
L'Eau Qui Court .....	32	5	6	43	215
Lincoln .....	196	30	35	261	1,305
Madison .....	46	7	8	61	305
Merriek .....	81	12	14	107	535
Nemaha .....	1,237	185	223	1,645	8,225
Otoe .....	1,621	243	292	2,156	10,780
Pawnee .....	548	82	98	728	3,640
Platte .....	334	50	60	444	2,220
Richardson .....	1,371	206	247	1,824	9,120
Saline .....	123	18	22	163	815
Sarpy .....	511	77	92	680	3,400
Saunders .....	215	32	39	286	1,430
Seward .....	188	28	34	250	1,250
Stanton .....	32	5	6	43	215
Washington .....	587	88	106	781	3,905
Total population .....	.....	.....	.....	.....	101,225

The following statement of the material wealth of Nebraska from 1860 to 1869, inclusive, is carefully compiled from the records on file in the office of the State auditor, and gives an approximate exhibit of the increase from year to year. The amounts, however, fall short of the market values very seriously, for the reason that the various precinct assessors hardly ever give the full value of taxable property, but are governed in their assessments, as a general rule, by the statements of the individuals taxed, and in consequence the values rendered fall short of the real market price fully one-third, and in some instances nearly two-thirds. For instance, I know of lands valued by assessors at \$7 50 per acre, which could not be purchased for less than \$50 per acre.

It will be observed that the increase since the close of the late war has been very rapid, but this is partly owing to the construction of the Union Pacific railway.

As soon as this corporation shall have obtained all their lands in Nebraska from the United States, a very large amount will be added to the taxable property, exclusive of the great impetus it has given to the influx of wealth into the State through immigration.

## Statement of the material wealth of Nebraska from 1860 to 1869.

Property valued.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.
Number of acres of land.....	762,994	1,066,123	1,323,170	1,431,134	1,542,900	1,634,273	1,640,992	1,803,594 00	2,591,010	3,632,301
Value of lands.....	\$3,735,539	\$4,004,198	\$3,648,143	\$3,416,275	\$4,213,352	\$4,703,352	\$5,965,609	\$7,285,892 00	\$9,731,871	\$17,345,744
Value of town lots.....	\$2,385,730	\$1,823,719	\$1,363,419	\$1,340,814	\$1,180,812	\$1,782,656	\$2,520,008	\$3,778,639 32	\$5,361,369	\$7,315,425
Amount invested in merchandise.....	\$22,500	\$274,952	\$76,709	\$196,843	\$264,900	\$332,539	\$1,042,602	\$1,493,553 00	\$1,813,376	\$2,200,758
Amount invested in manufactures.....	\$47,300	\$36,002	\$36,676	\$89,748	\$1,767	\$75,015	\$126,984	\$142,742 00	\$236,740	\$413,654
Amount invested in stocks and shares.....	\$287,540	\$183,524	\$153,033	\$147,597	\$234,130	\$292,914	\$14,696	\$46,696 00	\$41,413	\$79,076
Amount of moneys and credits.....								\$906,324 00	\$1,134,704	\$1,615,913
Taxable household furniture.....	\$22,845	\$103,362	\$53,745	\$46,210	\$9,003	\$25,507	\$56,231	\$83,014 00	\$30,906	\$130,984
Number of horses.....	3,087	3,896	4,808	5,835	7,682	9,373	12,864	16,379 00	23,796	28,615
Value of horses.....	\$203,683	\$196,287	\$240,480	\$249,708	\$373,689	\$579,316	\$1,011,025	\$1,216,655 00	\$1,501,640	\$1,906,727
Number of neat cattle.....	12,830	17,302	30,396	35,640	33,706	42,430	54,573	58,810 00	64,367	74,238
Value of cattle.....	\$247,914	\$239,629	\$287,615	\$294,539	\$413,114	\$640,858	\$1,196,176	\$1,290,610 25	\$1,302,094	\$1,368,401
Number of mules and asses.....	175	125	975	280	423	678	1,427	2,581 00	2,029	2,455
Value of mules and asses.....	\$15,072	\$12,270	\$30,290	\$19,724	\$3,091	\$57,340	\$73,878	\$251,563 00	\$146,306	\$213,299
Number of sheep.....	1,337	1,483	2,072	1,248	1,018	3,060	12,039	17,318 00	25,352	30,639
Value of sheep.....	\$1,919	\$2,569	\$3,384	\$1,185	\$808	\$10,200	\$43,081	\$12,872 00	\$45,983	\$46,425
Number of swine.....	7,437	11,607	17,143	19,265	24,755	21,110	15,492	14,529 00	30,097	29,769
Value of swine.....	\$17,507	\$24,212	\$27,599	\$25,894	\$31,621	\$25,343	\$41,357	\$63,686 00	\$80,050	\$99,327
Number of carriages and vehicles.....	491	666	1,923	1,874	3,530	4,461	5,948	7,209 00	8,863	11,277
Value of carriages and vehicles.....	\$95,989	\$82,665	\$73,831	\$73,839	\$136,557	\$160,890	\$330,078	\$433,279 00	\$419,651	\$499,501
Value of property not enumerated.....	\$234,600	\$138,462	\$296,325	\$253,523	\$182,280	\$172,538	\$378,022	\$762,332 00	\$7,201,651	\$8,825,661
Total valuation for each year.....	\$7,584,194	\$7,117,791	\$6,383,247	\$6,089,989	\$7,175,204	\$9,078,117	\$13,563,925	\$17,835,881 57	\$32,644,497	\$42,094,595

\* Includes moneys and credits.

## RAILROADS IN NEBRASKA.

I append a list of all the railroads projected, in process of construction, and completed within the State. Some of these will, no doubt, remain inactive for some time to come, but that they will all, or nearly all, be eventually constructed there can be but little doubt. Few States present better facilities, so far as routes are concerned, for the construction of railroads, and the unparalleled productiveness of the soil warrants, and in a short time will imperatively demand, all the increased facilities of transportation designed in their construction.

1. *Bellevue Union Pacific and Lancaster Railroad Company*.—Organized June 12, 1867. Capital stock \$1,000,000. Point of departure is at Bellevue, Sarpy county; route to a point on the Union Pacific Railway, thence through Sarpy, Cass, and Lancaster counties to Lincoln, the capital.

2. *Northern Nebraska Air Line Railroad Company*.—Organized June 7, 1867; twenty-four miles completed. Capital stock \$2,000,000. Point of departure, at, and within, the town of De Soto, Washington County; thence through the counties of Washington and Dodge, or parts of the same, to the town of Fremont, in Dodge County, Nebraska. Length of road twenty-four miles.

3. *Kansas and Nebraska Railroad Company*.—Organized June 10, 1867. Capital stock \$5,000,000. Commences at the Missouri River in Richardson County, where the line of Kansas and Nebraska intersects said river; thence up said river as near as practicable, through the counties of Richardson, Nemaha, Otoe, Cass, and Sarpy, to the Union Pacific railway in section 15, township 14 north, range 13 east of sixth principal meridian.

4. *Decatur, Fremont, and Lancaster Railroad Company*.—Organized June 13, 1867. Capital stock \$2,000,000. Commences in the town of Decatur, Burt County, Nebraska; thence by the most practicable route to Fremont, in Dodge County; thence by most practicable route to Lincoln, in Lancaster County.

5. *Chicago and Northwestern Trunk of the Pacific Railroad Company*.—Organized January 6, 1865. Capital stock \$1,000,000. Termini as follows: Main trunk commences in township 18 north, range 12 east of the sixth principal meridian; thence westerly, through the counties of Washington and Dodge, to Omaha branch of the Union Pacific railway, in range 6 east of sixth principal meridian, or as near as may be expedient. (Same as road No. 2.)

6. *Bellevue and Union Pacific Railroad Company*.—Organized November 30, 1865. Capital stock \$250,000. Eastern terminus on the Missouri River, in the town of Bellevue, Sarpy County; thence through part of said county to the Union Pacific railway in section 33, township 14 north, range 13 east, the western terminus.

7. *Nebraska City and Great Western Railway Company*.—Organized January 8, 1867. Capital stock \$2,000,000. Commences at Nebraska City, and running through the counties of Otoe, Lancaster, Saline, Kearney, and the unorganized territory between Saline and Kearney Counties, joins the Union Pacific railway at longitude 100° west of Greenwich.

8. *Bellevue, Ashland, and Lincoln Railroad Company*.—Organized August 10, 1867. Main trunk commences in the town of Bellevue, in Sarpy County; thence southwesterly to Platte River; thence up the same, via the town of Ashland; thence southwest up Salt Creek to Lincoln, Lancaster County.

9. *Midland Pacific Railway Company*.—Organized October 1, 1867. Capital stock \$2,000,000 as authorized; amount taken \$310,000; amount expended in surveying, grading, &c., \$88,987 42. Begins at Nebraska City, passes Lincoln, and ends on the Union Pacific Railway within one hundred miles east of Fort Kearney; to pass through Otoe, Lancaster, Seward, York, Hamilton, and Adams Counties; with a branch in Otoe County, running through Johnson, Pawnee, and Gage Counties to south boundary of Nebraska, toward Fort Riley, in Kansas.

10. *Sioux City and Bellevue Railroad Company*.—Organized June 13, 1867. Capital stock \$2,000,000. Commences at Covington, Dakota County; thence southerly, through Dakota County, Omaha, and Winnebago reserve, Burt, Washington, Douglas, and Sarpy Counties, to Bellevue, Sarpy County.

11. *Nemaha Valley Railroad Company*.—Organized June 11, 1867. Capital stock \$9,000,000. Begins at Rulo, Richardson County, thence up the Great Nemaha River to Salem in said county; thence up the north fork of said river to Lincoln City; thence to Columbus, Platte County; passing through Richardson, Pawnee, Johnson, Lancaster, Seward, and Butler Counties.

12. *Decatur and Columbus Railroad Company*.—Organized June 13, 1867. Capital stock \$2,000,000. Commences at Decatur, Burt County, on the Missouri River; thence westerly through Burt, Cuming, Dodge, and Platte Counties, to the town of Columbus.

13. *Plattsmouth and Pacific Railroad Company*.—Organized March 12, 1868. Capital stock \$2,000,000. Commences at Plattsmouth, Cass County; thence to the nearest practicable point on the Union Pacific railway, in Sarpy County.

14. *Omaha and Southwestern Railroad Company*.—Organized April 8, 1868. Begins at Omaha, and runs through Douglas, Sarpy, Dodge, Saunders, Cass, Lancaster, Seward,



Saline, and Gage Counties, to the Big Blue River, where it enters Kansas. Capital stock \$3,000,000.

15. *Topeka, State Line, and Lincoln Railroad Company*.—Organized January 30, 1868. Capital stock \$30,000,000. Commences between sections 35 and 36, township 1 north, range 11 east of sixth principal meridian; thence northwesterly through Pawnee, Johnson, Gage, and Lancaster Counties, to Lincoln, the capital of Nebraska.

16. *Lincoln, Sioux City, and Fontenelle Railroad Company*.—Organized February 24, 1868. Capital stock \$2,500,000. Commences at Lincoln, Lancaster County, and passes through Saunders, Dodge, Washington, Burt, and Dakota Counties, to a point on the Missouri River opposite Sioux City.

17. *Sioux City and Columbus Railroad Company*.—Organized January 15, 1868. Capital stock \$4,000,000. Commences on the Missouri River, opposite Sioux City, Iowa; thence to Union Pacific railway, at or near Columbus, on as near an air-line as practicable, through Dakota, Dixon, Staunton, Madison, and Platte Counties.

18. *Lincoln and Platte Valley Railroad Company*.—Organized July 1, 1869. Capital stock \$6,000,000. Commences at Lincoln, thence westerly through Lancaster, Seward, Saline, York, Fillmore, Hamilton, Clay, Polk, Butler, Adams, Hall, Merrick, and Kearney Counties, to the Union Pacific railway, at, or not more than fifty miles from, Grand Island City.

19. *Fremont, Elkhorn, and Missouri River Railroad Company*.—Organized January 21, 1869. Capital stock \$4,000,000. Commences at or near Fremont, Dodge County, thence westerly through Elkhorn Valley, and branch of same through Dodge, Burt, and Dakota Counties; the main line runs through Cumming, Pierce, L'Eau Qui Court, or Dixon and Cedar Counties, with a branch through Madison and Holt Counties.

20. *Burlington and Missouri River Railroad Company*.—Organized May 12, 1869. Capital stock, \$7,500,000. Commences at Plattsmouth, Cass County, thence westwardly, up the Missouri and Platte Rivers and Salt Creek, through Cass, Saunders, Lancaster, Saline, Seward, York, Hamilton, Adams, Kearney, Merrick, Hall, and Buffalo Counties, to the Union Pacific railway at Kearney Station.

21. *St. Louis, St. Joseph, and Nebraska Railroad Company*.—Organized November 24, 1868. Capital stock, \$2,000,000. Begins at Walnut Creek, on south boundary of Nebraska, in Richardson County, thence on said creek to Great Nemaha River, up same to Salem; thence along the North Fork of Nemaha River to Morand and Humboldt, Richardson County, and Tecumseh, Byron, and Latrobe, Johnson County, via head of said North Fork and of Salt Creek, in Lancaster County; thence along same creek to Saltillo and Lincoln. Reorganized January 29, 1869; route the same.

22. *Fremont and Lincoln Railroad Company*.—Organized June 26, 1868. Capital stock, \$2,000,000. Begins at Fremont, Dodge County, and runs southwesterly through Dodge, Saunders, and Lancaster Counties, to Lincoln.

23. *St. Louis and Nebraska Trunk Railroad Company*.—Organized December 3, 1868. Capital stock, \$4,000,000. Runs through Douglas, Sarpy, Cass, Otoe, Nemaha, and Richardson Counties, to State line; from Omaha via Bellevue, Plattsmouth, Nebraska City, Brownville, and Rulo.

24. *North Nebraska Trunk Railroad Company*.—Organized January 26, 1869. Capital stock, \$2,000,000. Commences within five miles of Dakota City, on the Missouri River, thence westerly through Dakota, Dixon, Cedar, and L'Eau Qui Court Counties, to or near Niobrara, L'Eau Qui Court County.

25. *Nebraska City and Southwestern Railroad Company*.—Organized July 15, 1869. Capital stock, \$1,000,000. Begins at Nebraska City, Otoe County, thence through Otoe, Johnson, Pawnee, Gage, and Jefferson Counties, to Republican River; up same, through Nuckolls, Kearney, and Lincoln Counties, to Colorado Territory.

26. *Great Nemaha Valley, Lincoln City, and Loup Fork Railroad Company*.—Organized December 19, 1868. Capital stock, \$1,000,000. Commences at Rulo, Richardson County; thence via Falls City and Salem, in said county; thence through Pawnee and Johnson Counties, at or near Tecumseh; thence through Gage and Lancaster Counties, via Lincoln; thence through Seward and Butler Counties, crossing the Platte at mouth of the Loup; thence through Platte County via Columbus; thence up the Loup and to north boundary of Nebraska at longitude 100° west of Greenwich.

27. *Ashland and Columbus Railroad Company*.—Organized April 2, 1869. Capital stock, \$1,000,000. Commences at Ashland, Saunders County, thence northwesterly through Saunders, Butler, Colfax, and Platte Counties, to Schuyler, in Colfax County; thence to Columbus, Platte County.

28. *Plattsmouth, Ashland, and Lincoln Railroad Company*.—Organized February 15, 1869. Capital stock, \$1,000,000. Begins at Plattsmouth, Cass County, thence by best route via Ashland, Saunders County, to Lincoln, Lancaster County.

29. *Yankton and Columbus Railroad Company*.—Organized December 16, 1868. Capital stock, \$4,000,000. Commences on the Missouri River, opposite Yankton, Dakota Territory, thence through Cedar, L'Eau Qui Court, Pierce, Madison, Staunton, and Platte Counties, to Columbus.

30. *Elkhorn Valley Railroad Company*.—Organized February 2, 1869. Capital stock,

\$5,000,000. Commences at Omaha, Douglas County, and terminates at the mouth of Niobrara River; runs through Douglas, Dodge, Washington, Cuming, Staunton, Pierce, Wayne, Cedar, L'Eau Qui Court, and Madison Counties.

31. *St. Louis, Omaha, and Dakota Railroad Company*.—Organized August 19, 1868. Capital stock, \$4,000,000. Begins at Omaha and ends on Missouri River, opposite Sioux City; runs through Douglas, Washington, Burt, Omaha reservation, Dakota, Dixon, Cedar, and L'Eau Qui Court Counties.

32. *St. Louis, St. Joseph, and Fort Kearney Railroad Company*.—Organized November 17, 1868. Capital stock, \$500,000, with right to increase same to \$10,000,000. Begins on State line where South Fork of Great Nemaha crosses same in southeast corner of Pawnee County; thence through Pawnee, Gage, Jefferson, Nuckolls, Clay, Adams, and Kearney Counties, to Fort Kearney, with privilege of branch to Lincoln.

33. *Lincoln and State Line Railroad Company*.—Organized February 8, 1869. Capital stock, \$2,000,000. Begins at Lincoln; thence southerly, through Lancaster, Gage, Johnson, and Pawnee Counties, to State line at Turkey Creek, Pawnee County.

34. *Rulo, Missouri River, and State Line Railway Company*.—Organized January 2, 1869. Capital stock, \$200,000. Begins at Rulo, thence through Richardson County to State line, within ten miles of Missouri River.

35. *Brownville and Fort Kearney Railroad Company*.—Organized June 17, 1867. Capital stock, \$2,000,000. Begins at Brownville; runs through Nemaha, Johnson, Gage, Jefferson, Saline, and Fillmore Counties, to Fort Kearney.

36. *Little Nemaha River Railroad Company*.—Organized August 5, 1869. Capital stock \$500,000. Begins at junction of Long's Branch and Little Nemaha River, in township 5 north, range 14 east, Nemaha County; thence to the Midland Pacific railroad at Nursery Hill, Otoe County; route along Little Nemaha River.

*The Union Pacific Railway*, now completed, traverses the whole length of Nebraska, westwardly, mainly along the valleys of Platte River and Lodge Pole Creek, entering Wyoming sixteen and a half miles north of its southeast corner.

*The North Nebraska Air Line Railroad*, from De Soto to Fremont, is also completed.

*The Burlington and Missouri River Railroad* (Nebraska division) and the *Midland Pacific* are in progress of construction.

Among the other projected roads, Nos. 1 to 36, many cover the same route, and the total length, therefore, is more than when these roads shall have been built.

*Resumé*.—Number of railroads completed, two; length, 488 miles. Number of railroads being graded, two; length 114 miles, first sections. Number of railroads projected, thirty-five; total length, 3,950 miles; total amount of capital, \$118,650,000, exclusive of Union Pacific Railroad.

#### IRRIGATION.

It may not be out of place, in a report of this character, to say a few words on the subject of supplying water in those districts which become arid during the heated term of summer. It is now a pretty well established fact that the country which supplies the waters flowing into the Mississippi and Missouri receives its moisture from the Pacific, in the neighborhood of latitude 30° south, where it is conveyed by upper currents and precipitated along the mountains and numerous small lakes east of the Rocky Mountains.

The difference in the temperature of the atmosphere, at the points of evaporation and precipitation, is greater in the spring and winter; but becoming more equalized in the hotter months of summer, we fail to observe so great a rain fall at this time as we do in the other seasons named, and consequently there are portions of Western Nebraska which suffer annually from the long continued drought of the summer months. It is true that the snows of the mountains west of this State, melting under the influence of the sun in early summer, feed the springs and streams, keeping the latter in a swollen state till the early part of July; but the high inclination of the disturbed aqueous formation of rocks bordering these mountains on the east, along the anticlinal axis of upheaval, causes these strata to receive and convey a large portion of the precipitated rains to a great depth, and for a long distance east below the surface.

As far east as longitude 24° west of Washington, the high upland prairie of Nebraska is subject to drought in extremely warm weather.

From longitude 27° to 24° west the fall of the surface eastward is at the rate of 10.34 feet per mile, and it is not until a more gradual descent occurs that the rains seem to avail in rendering and keeping the soil sufficiently moist for farming purposes.

In this belt of country there are numerous streams and cañons which afford abundant grasses along their accompanying bottoms, and considerable timber for fuel; but on the high upland prairie it will be necessary to adopt artificial means for supplying the lack of moisture in the soil.

Artesian wells will, no doubt, be used for this purpose at the proper time; and as the underlying strata, across this portion of Nebraska, are not supposed to be at a

greater angle of inclination than 6' or 7', there is every probability that copious perennial streams of water will be cut; but owing to the nearly vertical dip of the aqueous rocks in the immediate vicinity of the Rocky Mountains, it is altogether likely that a considerable depth will have to be obtained before any large supply can be reached.

The very great altitude of the mountains above the plains furnishes reasonable grounds for presuming that the introduction of these wells as a means of furnishing an artificial supply of water to those portions of the plains where it is now deficient, will prove successful.

Another means of obtaining water is by damming the cañons, and allowing them to fill up with the surface water accumulated from rains during the rainy season; and the same plan may be adopted with the drains of these uplands. Mr. Hans Thielson, chief engineer of the Burlington and Missouri River railroad, informs me that this method has proved successful along the line of that railroad in the State of Iowa. Selecting some point along the ravine or drain, where the distance across is shortest, the erection of a dam prevents the escape of the waters, and secures an abundant supply up the course of the cañon throughout the entire year.

Where these water-worn drains can be found in elevated portions of the prairie, (and they are quite plentiful in that situation in Western Nebraska,) the supply of water thus obtained could be used advantageously over lower portions of the country. Of course, it would be highly important in the construction of these dams to avoid too great depth in the water accumulated, as this, if too deep, would involve immense pressure on the dam, necessitating greater expense in its construction and more risk in its permanency.

I am, sir, very respectfully, your obedient servant,

ROBT. R. LIVINGSTON,

*Surveyor General District of Iowa and Nebraska.*

Hon. JOSEPH S. WILSON,

*Commissioner General Land Office, Washington City, D. C.*



SCHEDULE A.—List of towns and cities in the State of Nebraska, east of 6th principal meridian.

Names.	Sec.	T.	R.	Names.	Sec.	T.	R.
			E.				E.
Nohart .....	34	1	18	Kenosha .....		11	14
Rulo .....	16	1	18	Rock Bluff .....	9 & 16	11	14
Arago .....	12	2	17	Elkhorn Station .....	12	15	10
St. Stephen .....	1	2	17	Elkhorn City .....	10	16	10
Williamsville .....	30	3	17	Belle Creek .....	9	17	10
St. Dervin .....	31	4	17	Silver Creek .....	36	22	10
Falls City .....	10	1	16	Golden Spring .....	25	23	10
Archer .....	1	1	16	Decatur .....	23	2	9
Elmore .....	20	2	16	Tipp's Branch .....	23	2	9
Aspinwall .....	20	4	16	Crab Orchard .....	8	4	9
Hillsdale .....	23	4	16	Liberty .....	29	2	9
Brownville .....	7 & 18	5	16	Bryson .....	26	6	9
Salem .....	3	1	15	Latrobe .....	7	6	6
Elkton .....	24	3	15	Solon .....	8	7	9
Nemaha City .....	1	4	15	Palmyra .....	2	8	9
Locust Grove .....	7	4	15	Salt Creek .....	16	12	9
Peru .....	16	6	15	Ashland .....	1	12	9
Mills .....	1	1	14	Headland .....	12	14	9
Miles's Ranch .....	33	2	14	Belle Creek Station .....	12	17	9
Wells .....	31	2	14	Fontanelle .....	17	18	9
Dawson's Mill .....	22	2	14	Covington .....	20	29	9
Monond .....	19	2	14	Wilson .....	12	8	12
Monterey .....	17	3	14	Avoca .....	33	10	12
Sherman .....	29	4	14	Centre Valley .....	5	10	12
London .....	16	5	14	Eight-mile Grove .....	1	11	12
Plattsmouth .....	7, 12	12	13 & 14	Glendale .....	19	12	12
Oreapolis .....	13 & 18	12	14	Louisville .....	7	12	12
Bellevue .....	1, 6	13 & 14	13 & 14	Blue Spring .....	17	2	7
Middleburg .....	25	1	13	Saltillo .....	6	8	7
Athens .....	17	2	13	Stephens Creek .....	13	10	7
Humboldt .....	3	2	13	Cedar Bluffs .....	26	17	7
Long Branch .....	20	3	13	Timberville .....	10	17	7
Popens .....	28	5	13	Galena .....	21	20	7
Clifton .....	3	5	13	Jackson .....	36	29	7
Howard .....	16	6	13	Beatrice .....	34	4	6
Delaware .....	17 & 18	7	13	Paris .....	26	5	6
Factoryville .....	27	10	13	Centreville .....	27	8	6
Union .....	13	10	13	Lincoln City .....	23 & 26	10	6
Mount Pleasant .....	5	10	13	Gregory's Basin .....	15	10	6
Three Groves .....	36	11	13	Benton .....	20	17	6
Larimer .....	26	13	13	North Bend .....	7	17	6
Sarpy .....	21	13	13	Pebble Creek .....	36	20	6
Papillion .....	31	14	13	Oak Springs .....	14	20	6
Omaha .....	15 & 22	15	13	St. Charles .....	21	21	6
Florence .....	21	16	13	West Point .....	34	22	6
Pleasant Vale .....	25	1	12	De Witt .....	4	22	6
Table Rock .....	32	3	12	Elmwood .....	34	11	10
Spring Creek .....	31	6	12	South Bend .....	24	12	10
Grant .....	10	6	12	Forest City .....	14	13	10
Lisbon .....	15	13	12	Iron Bluffs .....	26	14	10
Platte Valley .....	10	13	12	Chicago .....	14	15	10
Fort Calhoun .....	11	17	12	Primrose .....	9	15	10
De Soto .....	20 & 21	18	12	Swan City .....	15	5	4
Woodville .....	30	21	12	Blue Island .....	27	6	4
Pawnee City .....	26	2	11	Crete .....	27	8	4
Butler .....	23	4	11	Camden .....	32	9	4
Tecumseh .....	28	5	11	Linwood .....	26	17	4
Helena .....	8	6	11	Buchanan .....	9	17	4
Nursery Hill .....	17	8	11	Lime Creek .....	32	32	4
Emerson .....	10	8	11	Elmont .....	2	23	4
Weeping Water .....	33	11	11	Dixon .....	27 & 28	32	4
Xenia .....	6	12	11	Rock Creek .....	26	2	3
Plattford .....	36	13	11	Equality .....	27	5	3
Kennard .....	5	17	11	West's Mill .....	30	9	3
Blair .....	1 & 12	18	11	Milford .....	2	9	3
Cuming City .....	34	19	11	Schuyler .....	2	17	3
Bono .....	13	19	11	Seward .....	21	11	3
Homestead .....	34	20	11	Canton .....	2	23	3
Arizona .....	14	21	11	Antelope .....	10	1	2
Tekama .....	19	21	11	Pleasant Run .....	30	23	2
Central City .....	3	22	11	Eldorado .....	34	17	2
Vesta .....	31	5	10	Dakota .....	9	28	9
Hendricks .....	19	7	10	Hooker .....	12	5	8
Syracuse .....	11	8	10	Laona .....	28	6	8
Glen Rock .....	29	6	14	Rebecca .....	24	9	8
Otoe City .....	1	7	14	Camp Creek .....	10	14	8
Nebraska City .....	4 & 9	8	14	Fremont .....	16 & 21	17	8
Wyoming .....	7	9	14	Jalapa .....	5	18	8
				Logan .....	10	19	8
				Omadi .....	23	27	8

*List of towns and cities east and west of 6th principal meridian—Continued.*

Names.	Sec.	T.	R.	Names.	Sec.	T.	R.
			E.				W.
St. John .....	30	29	8	Lone Tree .....	15	13	6
Otoe Agency .....	Res'n.	1	7	280-Mile Station .....		13	28
			W.	Chapman .....	7	12	7
Genoa .....	18	17	3	McPherson .....			
Secret Grove .....	26	32	3	Grand Island Station .....	17	11	9
Cottonwood .....		12	27	Ogallala .....			
Niobrara .....	5	32	6	White Cloud Station .....	6	9	12
Gilmore .....				Kearney City .....	19	8	15
Junction Village .....	20	10	9	Plum Creek .....		8	20
North Platte .....				Elm Creek Station .....	28	9	18
Albaville .....	13	10	11				E.
Big Spring .....				Clinton .....	2	23	2
Valley City .....	Res'n.	8	14	St. James .....	2	32	2
Potter .....				St. Helena .....	30	33	2
Kearney Station .....	26	9	15	Big Sandy .....	17	3	1
Hopeville .....	24 & 25	8	18	Columbus .....	29 & 30	17	1
Sidney .....				Beaver Crossing .....	33	10	1
Fort Kearney .....	Res'n.	8	15				W.
Bushnell .....				Rose Creek .....	2	1	1
			E.	Norfolk .....	22	24	1
Ponca .....	22	30	6	McFadden .....	8	9	2
Dry Creek .....	4	4	5	Monroe .....	6 & 7	17	2
Olive Branch .....	10	7	5	Frankfort .....	8 & 17	33	2
Middle Creek .....	29	10	5	Midway .....		10	24
Wallace .....	11	17	5	Santee Agency .....	7 & 8	32	5
Bismarek .....	4	22	5	Brady Island Station .....		13	27
Lake View .....	27	23	5	Brewer's Ranch .....	31 & 36	13	6 & 7
Newcastle .....	36	31	5	Clark .....			
Ionia .....	10	31	5	O'Fallon's .....			
Jenkins's Mill .....	30	1	4	Grand Island City .....	22	11	9
			W.	Wood River Station .....	33 & 34	10	12
Silver Creek .....	33	16	3	Lodge Pole .....			
Plum Creek Station .....		9	21	Nebraska Centre Station .....	14 & 23	9	14
Willow Island .....		11	24	Antelope .....			

Total number of towns and cities in Nebraska, 222.

ROBT. R. LIVINGSTON,

*Surveyor General District Iowa and Nebraska.*

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

SCHEDULE B.—*Agricultural, timber, swamp, and other lands in Nebraska.*

Townships.	Range.	Total area.	Area of agricultural lands.	Swamp lands.	Timber lands.	Sterile lands.	Grazing lands.	Remarks.
N.	E.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
1 to 33...	1	747,551.32	737,831.32	2,320	7,400	.....	.....	Columbus.
1 to 32...	2	756,019.02	747,499.02	40	8,480	.....	.....	Nenagh.
1 to 32...	3	723,605.74	722,145.74	.....	6,460	.....	.....	To Missouri River.
1 to 32...	4	706,294.55	695,633.55	.....	10,661	.....	.....	Buchanan.
2 to 32...	5	679,820.25	672,400.25	540	6,880	.....	.....	Reservations.
2 to 32...	6	642,215.33	628,819.33	2,456	10,940	.....	.....	Indian reservations.
1 to 30...	7	635,269.17	621,857.17	2,760	10,652	.....	.....	Do.
1 to 30...	8	535,367.75	523,017.75	4,960	7,390	.....	.....	Do.
1 to 29...	9	620,139.59	603,009.59	2,730	14,400	.....	.....	Do.
1 to 27...	10	563,173.61	547,283.61	1,090	14,800	.....	.....	Omaha reservation.
1 to 24...	11	510,024.39	483,635.70	7,480	18,050	858.69	.....	Tekama.
1 to 22...	12	411,027.08	390,276.08	560	20,191	.....	.....	Missouri River.
1 to 17...	13	359,684.78	326,504.78	420	32,760	.....	.....	Reserve.
1 to 16...	14	208,754.13	192,674.13	.....	16,080	.....	.....	Reservations.
1 to 8...	15	122,519.62	116,199.62	.....	6,320	.....	.....	Do.
1 to 7...	16	88,043.06	73,789.06	.....	12,254	.....	.....	Do.
1 to 3...	17	53,092.33	44,692.33	.....	8,400	.....	.....	Do.
1 & 2...	18	12,797.09	9,917.09	.....	2,880	.....	.....	Do.
W.								
1 to 33...	1	753,535.32	743,850.32	1,624	8,061	.....	.....	Platte and Mo. Rivers.
1 to 33...	2	747,812.04	739,782.04	680	7,350	.....	.....	Do.
1 to 33...	3	740,026.95	731,482.95	1,520	7,017	.....	.....	Do.
1 to 33...	4	688,913.29	684,883.29	1,320	2,710	.....	.....	Pawnee reserve.
1 to 33...	5	682,559.57	676,058.57	334	6,167	.....	.....	Do.
1 to 32...	6	665,437.38	524,693.91	480	5,040	.....	135,223.47	Pawnee reservation.
1 to 32...	7	582,265.53	340,272.08	520	7,960	.....	233,513.45	3½ miles railroad.
1 to 32...	8	552,170.27	302,326.03	320	4,360	.....	245,164.24	6½ miles railroad.
1 to 20...	9	434,257.03	197,469.32	90	5,980	.....	230,717.71	5½ miles railroad.
1 to 20...	10	455,390.94	186,676.98	.....	5,175	.....	263,538.96	2½ miles railroad.
1 to 20...	11	455,260.90	133,823.24	200	6,235	.....	315,002.66	Peat bed of 200 acres.
1 to 20...	12	531,885.80	195,482.29	.....	2,570	.....	333,833.51	Township 18 excepted.
1 to 19...	13	426,296.25	167,122.65	640	2,360	.....	256,173.60	6½ miles railroad.
1 to 18...	14	378,558.62	96,351.92	165	3,500	.....	278,541.70	Fort Kearney.
1 to 16...	15	333,147.04	172,251.59	1,080	3,420	.....	156,385.45	6½ miles railroad.
1 to 16...	16	376,407.86	64,734.26	600	2,922	.....	308,151.60	Ft Kearney reservat'n.
1 to 12...	17	208,447.38	32,017.17	700	1,000	.....	174,730.21	2, 3, and 4 excepted.
5 to 12...	18	180,235.88	5,033.00	.....	.....	.....	175,202.88	7 miles railroad.
8 to 12...	19	110,997.31	.....	.....	.....	.....	110,997.31	6½ miles railroad.
7 to 12...	20	134,525.77	31,590.98	400	.....	.....	102,534.79	6½ miles railroad.
7 to 12...	21	134,427.31	25,937.03	.....	.....	.....	108,490.28	6½ miles railroad.
9 to 12...	22	88,233.10	88,053.10	.....	.....	180	.....	5½ miles railroad.
9 to 12...	23	87,812.45	64,873.54	.....	60	.....	22,878.91	7½ miles railroad.
* Totals..		18,127,002.80	14,341,959.38	36,029	296,885	1,038.69	3,451,090.73	Surveyed.
Unsurveyed		30,509,797.20	9,617,397.20	25,000	133,000	934,400.00	19,800,000.00	Estimated.
Area Neb'a.		48,636,800.00	23,959,356.58	61,029	429,885	935,438.69	23,251,090.73	Surveyed and unsurv'd.

\* The three lines of total areas above give: first, the amount of surveyed lands in Nebraska, with the five classes composing it; second, the amount of unsurveyed lands, with the five classes composing it; third, the total area of the State, with the totals of the five component classes. Totals in square miles, in all, 75,995, of which there are 37,436 agricultural, 95 swamp, 672 timber, 1,462 sterile, and 36,330 grazing land.

ROBT. R. LIVINGSTON,  
*Surveyor General, District of Iowa and Nebraska.*

SURVEYOR GENERAL'S OFFICE,  
*Plattsmouth, August 21, 1869.*

**A.—Statement showing the amount expended for salaries of surveyor general and clerks during fiscal year ending June 30, 1869.**

Quarter ending September 30, 1868.....	\$1,523 91
Quarter ending December 31, 1868.....	1,559 78
Quarter ending March 31, 1869.....	1,775 00
Quarter ending June 30, 1869.....	1,671 14
Total .....	6,529 83



B.—*Statement showing the amount expended for rent of office and incidental expenses during fiscal year ending June 30, 1869.*

Quarter ending September 30, 1868.....	\$313 18
Quarter ending December 31, 1868 .....	342 65
Quarter ending March 31, 1869 .....	281 90
Quarter ending June 30, 1869.....	398 12
Total .....	<u>1,335 85</u>

RECAPITULATION.

Salaries of surveyor general and clerks during the fiscal year.....	\$6,529 83
Rent of office and incidental expenses during the fiscal year.....	1,335 85
Total .....	<u>7,865 68</u>

ROBT. R. LIVINGSTON,

*Surveyor General District Iowa and Nebraska.*

SURVEYOR GENERAL'S OFFICE,  
*Plattsmouth, August 21, 1869.*

C.—Statement showing the extent and cost of surveys executed in Nebraska during the fiscal year ending June 30, 1869.

Number of contract.	Names of deputies.	Standard lines.		Exterior lines.		Section lines.		Date of appropriation.	Date of contract.	Rate per mile.	Cost of survey.
		Miles.	Ch'ns. L'ks.	Miles.	Ch'ns. L'ks.	Miles.	Ch'ns. L'ks.				
5	William J. Allason.....	.....	.....	.....	.....	.....	.....	Mar. 2, 1867	May 25, 1868	26	\$504 56
5	William J. Allason.....	.....	.....	.....	.....	480	10 39	Mar. 2, 1867	May 25, 1868	5	2,400 68
6	Park and Burch.....	.....	.....	143	72 96	.....	.....	Mar. 2, 1867	May 26, 1868	6	863 47
6	Park and Burch.....	.....	.....	.....	.....	258	00 91	Mar. 2, 1867	May 26, 1868	5	1,290 06
6	Park and Burch.....	.....	.....	.....	.....	835	17 18	Mar. 2, 1867	May 26, 1868	5	4,176 07
7	Paul and Davis.....	72	40 43	.....	.....	.....	.....	Mar. 2, 1867	June 6, 1868	10	725 05
7	Paul and Davis.....	.....	.....	312	38 07	.....	.....	Mar. 2, 1867	June 6, 1868	6	1,874 85
7	Paul and Davis.....	.....	.....	.....	.....	241	01 10	July 20, 1868	Aug. 8, 1868	5	1,205 07
8	Currence and Humason.....	.....	.....	.....	.....	73	65 60	July 20, 1868	Aug. 8, 1868	5	1,369 10
9	Josiah B. Park.....	.....	.....	84	10 95	.....	.....	Mar. 2, 1868	Aug. 8, 1868	6	504 82
9	Josiah B. Park.....	.....	.....	.....	.....	481	30 90	Mar. 2, 1868	Aug. 8, 1868	5	2,406 93
10	Miles S. Wooley.....	.....	.....	.....	.....	601	79 63	July 20, 1868	Aug. 8, 1868	5	3,009 97
11	William Hardin.....	.....	.....	.....	.....	377	34 04	July 20, 1868	Aug. 10, 1868	5	1,887 13
12	William J. Allason.....	.....	.....	.....	.....	311	60 02	July 20, 1868	Aug. 17, 1868	5	2,558 75
12	William J. Allason.....	.....	.....	.....	.....	.....	.....	July 20, 1868	Aug. 17, 1868	6	767 58
13	William E. Daugherty.....	.....	.....	127	74 43	.....	.....	July 20, 1868	Oct. 21, 1868	6	1,333 56
13	William E. Daugherty.....	.....	.....	.....	.....	266	57 03	July 20, 1868	Sept. 13, 1868	5	1,727 48
14	Josiah B. Park.....	72	59 87	.....	.....	.....	.....	July 20, 1868	Oct. 16, 1868	10	727 48
14	Josiah B. Park.....	.....	.....	.....	.....	181	21 03	July 20, 1868	Oct. 16, 1868	5	906 31
15	William J. Allason.....	.....	.....	.....	.....	252	12 80	July 20, 1868	Oct. 21, 1868	5	1,200 80
Totals.....		145	20 30	752	43 83	4,500	71 18	.....	.....	.....	28,772 24

ROBT. R. LIVINGSTON,  
Surveyor General District of Iowa and Nebraska.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

D.—Statement showing description and area of land for which township plats and descriptive lists have been furnished to the Omaha land district, Omaha, Nebraska, during the fiscal year ending June 30, 1869.

Township and range.	Acres.	Triplicate plats— when sent.	Descriptive lists — when sent.
Township 9 north, range 17 west .....	23,017.17	Sept. 18, 1868	Nov. 25, 1868.
Township 10 north, range 17 west .....	23,006.08	do .....	Do.
Township 11 north, range 17 west .....	23,013.30	do .....	Do.
Township 12 north, range 17 west .....	23,030.59	do .....	Do.
Township 9 north, range 18 west .....	23,071.32	do .....	Do.
Township 10 north, range 18 west .....	23,068.11	do .....	Do.
Township 11 north, range 18 west .....	23,033.22	do .....	Do.
Township 12 north, range 18 west .....	23,051.10	do .....	Do.
Township 16 north, range 9 west .....	22,881.21	Nov. 25, 1868	Do.
Township 16 north, range 10 west .....	22,904.72	do .....	Do.
Township 16 north, range 11 west .....	22,374.02	do .....	Do.
Township 16 north, range 12 west .....	22,772.34	do .....	Do.
Township 13 north, range 13 west .....	22,282.13	do .....	Do.
Township 14 north, range 13 west .....	22,971.58	do .....	Do.
Township 15 north, range 13 west .....	22,928.48	do .....	Do.
Township 16 north, range 13 west .....	22,887.48	do .....	Do.
Township 13 north, range 14 west .....	22,965.11	do .....	Do.
Township 14 north, range 14 west .....	22,191.55	do .....	Do.
Township 15 north, range 14 west .....	22,646.94	do .....	Do.
Township 16 north, range 14 west .....	22,866.77	do .....	Do.
Township 13 north, range 15 west .....	23,014.06	do .....	Do.
Township 14 north, range 15 west .....	22,964.64	do .....	Do.
Township 15 north, range 15 west .....	22,657.00	do .....	Do.
Township 16 north, range 15 west .....	22,363.15	do .....	Do.
Township 13 north, range 16 west .....	23,027.53	do .....	Do.
Township 9 north, range 19 west .....	23,018.02	do .....	Do.
Township 10 north, range 19 west .....	22,991.33	do .....	Do.
Township 11 north, range 19 west .....	22,944.90	do .....	Do.
Township 12 north, range 19 west .....	22,959.28	do .....	Do.
Township 9 north, range 20 west .....	22,949.98	do .....	Do.
Township 10 north, range 20 west .....	22,992.17	do .....	Do.
Township 11 north, range 20 west .....	22,958.16	do .....	Do.
Township 12 north, range 20 west .....	22,958.84	do .....	Do.
Total acres .....	754,762.28		

E.—Statement showing description and area of land for which township plats and descriptive lists have been furnished to the Nebraska City land district, Lincoln, Nebraska, during the fiscal year ending June 30, 1869.

Township and range.	Acres.	Triplicate plats— when sent.	Descriptive lists —when sent.
Township 7 north, range 20 west .....	22,990.98	May 20, 1869	May 20, 1869.
Township 8 north, range 20 west .....	19,675.64	do .....	Do.
Township 7 north, range 21 west .....	22,911.78	do .....	Do.
Township 8 north, range 21 west .....	21,843.28	do .....	Do.
Township 9 north, range 21 west .....	2,521.54	do .....	Do.
Township 9 north, range 22 west .....	14,041.00	do .....	Do.
Township 10 north, range 22 west .....	3.96	do .....	Do.
Township 10 north, range 23 west .....	6,350.81	do .....	Do.
Total acres .....	110,338.99		



F.—Statement showing description and area of land for which township plats and descriptive lists have been furnished to the Brownville land district, Beatrice, Nebraska, during the fiscal year ending June 30, 1869.

Township and range.	Acres.	Triplicate plats— when sent.	Descriptive lists— when sent.
Township 1 north, range 17 west .....	22,562.05	May 20, 1869	May 20, 1869.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

ROBT. R. LIVINGSTON,  
Surveyor General, District of Iowa and Nebraska.

G.—Statement showing description and area of land for which township plats and descriptive lists have been furnished to the Grand Island land district, Columbus, Nebraska, during the fiscal year ending June 30, 1869.

Township and range.	Acres.	Triplicate plats— when sent.	Descriptive lists— when sent.
Township 17 north, range 9 west .....	23,046.88	May 20, 1869	May 20, 1869.
Township 18 north, range 9 west .....	22,961.32	May 20, 1869	May 20, 1869.
Township 19 north, range 9 west .....	22,965.19	May 20, 1869	May 20, 1869.
Township 20 north, range 9 west .....	23,004.75	May 20, 1869	May 20, 1869.
Township 17 north, range 10 west .....	23,032.07	May 20, 1869	May 20, 1869.
Township 18 north, range 10 west .....	22,983.26	May 20, 1869	May 20, 1869.
Township 19 north, range 10 west .....	22,987.99	May 20, 1869	May 20, 1869.
Township 20 north, range 10 west .....	22,947.87	May 20, 1869	May 20, 1869.
Township 17 north, range 11 west .....	23,055.25	May 20, 1869	May 20, 1869.
Township 18 north, range 11 west .....	22,994.51	May 20, 1869	May 20, 1869.
Township 19 north, range 11 west .....	22,928.55	May 20, 1869	May 20, 1869.
Township 20 north, range 11 west .....	22,992.75	May 20, 1869	May 20, 1869.
Township 17 north, range 12 west .....	22,476.39	May 20, 1869	May 20, 1869.
Township 19 north, range 12 west .....	22,962.20	May 20, 1869	May 20, 1869.
Township 20 north, range 12 west .....	22,800.29	May 20, 1869	May 20, 1869.
Township 17 north, range 13 west .....	23,045.90	May 20, 1869	May 20, 1869.
Township 18 north, range 13 west .....	22,697.00	May 20, 1869	May 20, 1869.
Township 19 north, range 13 west .....	22,529.14	May 20, 1869	May 20, 1869.
Township 17 north, range 14 west .....	23,107.46	May 20, 1869	May 20, 1869.
Township 18 north, range 14 west .....	23,029.36	May 20, 1869	May 20, 1869.
Township 14 north, range 16 west .....	23,012.08	May 20, 1869	May 20, 1869.
Township 15 north, range 16 west .....	22,990.73	May 20, 1869	May 20, 1869.
Township 16 north, range 16 west .....	22,923.58	May 20, 1869	May 20, 1869.
*Township 9 north, range 19 west .....			May 20, 1869.
*Township 10 north, range 19 west .....			May 20, 1869.
*Township 11 north, range 19 west .....			May 20, 1869.
*Township 12 north, range 19 west .....			May 20, 1869.
*Township 8 north, range 20 west .....		May 20, 1869	May 20, 1869.
*Township 9 north, range 20 west .....			May 20, 1869.
*Township 10 north, range 20 west .....			May 20, 1869.
*Township 11 north, range 20 west .....			May 20, 1869.
*Township 12 north, range 20 west .....			May 20, 1869.
Township 8 north, range 21 west .....	717.60	May 20, 1869	May 20, 1869.
Township 9 north, range 21 west .....	17,395.23	May 20, 1869	May 20, 1869.
Township 10 north, range 21 west .....	23,021.03	May 20, 1869	May 20, 1869.
Township 11 north, range 21 west .....	23,008.68	May 20, 1869	May 20, 1869.
Township 12 north, range 21 west .....	23,008.17	May 20, 1869	May 20, 1869.
Township 9 north, range 22 west .....	5,468.49	May 20, 1869	May 20, 1869.
Township 10 north, range 22 west .....	22,759.73	May 20, 1869	May 20, 1869.
Township 11 north, range 22 west .....	22,998.44	May 20, 1869	May 20, 1869.
Township 12 north, range 22 west .....	22,961.48	May 20, 1869	May 20, 1869.
Township 9 north, range 23 west .....	23,027.00	May 20, 1869	May 20, 1869.
Township 10 north, range 23 west .....	13,580.05	May 20, 1869	May 20, 1869.
Township 11 north, range 23 west .....	22,975.68	May 20, 1869	May 20, 1869.
Township 12 north, range 23 west .....	22,878.91	May 20, 1869	May 20, 1869.
Total acres .....	771,300.01		

\* Plats of these townships sent to Omaha before change of district.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

ROBT. R. LIVINGSTON,  
Surveyor General, District Iowa and Nebraska.

H.—Statement of the estimated expense, number of miles, and character of surveys now being made, for which contracts have been entered into, and which are chargeable to appropriations of July 20, 1868, and March 3, 1869.

Names of deputies.	Numbers of contract.	Standard lines.	Exterior lines.	Section lines.	Meandering lines.	Rate per mile.	Estimated cost.	Condition of the work.
		Miles.	Miles.	Miles.	Miles.			
Currence & Humason.....	8			750		\$5	\$3,900 00	One township surveyed.
Do.....	8				36	5	180 00	On Republican River.
William Hardin.....	11			180		5	900 00	Six townships surveyed.
Do.....	11				24	5	120 00	On Loup River.
William E. Daugherty.....	13			420		5	2,100 00	Four townships surveyed.
Wiltse & Lonsdale.....	16		186			6	1,116 00	In the field.
Do.....	16			900		5	4,500 00	Do.
Do.....	16				60	5	300 00	On Platte River.
Allason & Kelsey.....	17	312				10	3,120 00	In the field.
Do.....	17		84			6	504 00	Do.
Do.....	17			480		5	2,400 00	Do.
Park & Campbell.....	18		204			6	1,224 00	Do.
Do.....	18			900		5	4,500 00	Do.
Do.....	18				40	5	200 00	On Platte River.
Burch & Warner.....	20	123				10	1,230 00	In the field.
Do.....	20		234			7	1,638 00	Do.
Do.....	20			480		6	2,880 00	Do.
Paul & Gilbert.....	21		408			7	2,856 00	Do.
Do.....	21			360		6	2,160 00	Do.
Do.....	21				84	6	504 00	On Platte River
Nelson Buck.....	22	96				10	960 00	In the field.
Do.....	22		312			7	2,184 00	Do.
W. E. & J. W. Daugherty.....	23	190				10	1,900 00	Do.
Do.....	23		312			7	2,184 00	Do.
Hiram C. Fellows.....	24	147				10	1,470 00	Do.
Do.....	24		423			7	2,961 00	Do.
William Hardin.....	25		144			7	1,008 00	Do.
Do.....	25			235		6	1,410 00	Do.
Do.....	25				12	6	72 00	On Platte River.
James McBride.....	26			360		6	2,160 00	In the field.
Bradburn & Patrick.....	27			480	36	6	3,096 00	Do.
Charles Wimpf.....	28			600		6	3,600 00	Do.
P. C. Patterson.....	29			500		6	3,000 00	Do.
Paul & Gilbert.....	30	96				10	960 00	Do.
O. N. Chaffee.....	19	312½				25	7,812 50	Do.
Totals.....		1,276½	2,307	6,675	292		71,109 50	

ROBT. R. LIVINGSTON,  
Surveyor General District Iowa and Nebraska.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

I.—Estimate of sums required for the extension of the public surveys in the State of Nebraska for the fiscal year ending June 30, 1871.

#### STANDARD LINES.

Fifth standard parallel north from second guide meridian west to State line, 252 miles, at \$10 per mile.....	\$2,520
Third, fourth, fifth, sixth, and seventh guide meridians west from fourth to fifth standard parallel north, 120 miles, at \$10 per mile.....	1,200
Total estimate for standard lines.....	3,720

#### EXTERIOR LINES.

Townships 21 to 32 north, ranges 9 to 16 west, inclusive, 936 miles, at \$7 per mile.....	\$6,552
Townships 1 to 4 north, ranges 25 to 32 west, inclusive, 312 miles, at \$7 per mile.....	2,184
Townships 1 to 8 north, ranges 33 to 42 west, inclusive, 744 miles, at \$7 per mile.....	5,208
Townships 15 north, ranges 27 to 32 west, inclusive, 66 miles, at \$7 per mile...	462
Townships 16 north, ranges 25 to 32 west, inclusive, 42 miles, at \$7 per mile...	294

Townships 15 and 16 north, ranges 43 to 48 west, inclusive, 96 miles, at \$7 per mile .....	\$672
Township 33 north, ranges 11 to 16 west, inclusive, 20 miles, at \$7 per mile .....	140
Total estimate for exterior lines .....	<u>15,512</u>

## SUBDIVISION LINES.

Township 4 to 6 north, ranges 22 to 24 west, inclusive, 540 miles, at \$6 per mile .....	\$3,240
Township 14 north, ranges 17 to 24 west, inclusive, 480 miles, at \$6 per mile .....	2,880
Township 7 north, range 25 west, 60 miles, at \$6 per mile .....	360
Townships 1 to 3 north, ranges 20 to 24 west, inclusive, 900 miles, at \$6 per mile .....	5,400
Township 8 north, ranges 25 to 32 west, inclusive, 480 miles, at \$6 per mile .....	2,880
Townships 9 to 11 north, ranges 29 to 32 west, inclusive, 720 miles, at \$6 per mile .....	4,320
Township 9 north, ranges 26 to 28 west, inclusive, 180 miles, at \$6 per mile .....	1,080
Township 14 north, ranges 30 to 32 west, inclusive, 180 miles, at \$6 per mile .....	1,080
Township 15 north, ranges 27 to 32 west, inclusive, 360 miles, at \$6 per mile .....	2,160
Township 15 north, ranges 49 to 55 west, inclusive, 420 miles, at \$6 per mile .....	2,520
Township 16 north, ranges 25 to 32 west, inclusive, 480 miles, at \$6 per mile .....	2,880
Townships 14 to 16 north, ranges 35 to 40 west, inclusive, 1,080 miles, at \$6 per mile .....	6,480
Township 14 north, ranges 41 to 46 west, inclusive, 360 miles, at \$6 per mile .....	2,160
Townships 10 to 12 north, ranges 33 to 40 west, inclusive, 1,440 miles, at \$6 per mile .....	8,640
Townships 29 to 32 north, ranges 9 to 16 west, inclusive, 1,918 miles, at \$6 per mile .....	11,508
Township 33 north, ranges 11 to 16 west, inclusive, 217 miles, at \$6 per mile .....	1,302
Meanders in the foregoing subdivisions, 180 miles, at \$6 per mile .....	1,080
Total estimate for subdivisions .....	<u>59,970</u>
Total estimate for exterior lines .....	<u>15,512</u>
Total estimate for standard lines .....	<u>3,720</u>

Total sum required for surveys in fiscal year ending June 30, 1871.... 79,202

ROBT. R. LIVINGSTON,

*Surveyor General District Iowa and Nebraska.*

SURVEYOR GENERAL'S OFFICE,

*Plattsmouth, August 21, 1869.*

*J.—Estimate of sums required for office expenses for the fiscal year ending June 30, 1871.*

Salary of surveyor general .....	\$2,000
Salary of chief clerk .....	1,600
Salary of principal draughtsman .....	1,300
Salary of assistant draughtsman .....	1,200
Salary of accountant .....	1,200
Salary of two copyists at \$1,100 each .....	2,200
Office rent, messenger, stationery, fuel, &c .....	2,000
Binding two hundred field-books in fifty volumes .....	100
Total .....	<u>11,600</u>

ROBT. R. LIVINGSTON,

*Surveyor General District Iowa and Nebraska.*

SURVEYOR GENERAL'S OFFICE,

*Plattsmouth, August 21, 1869.*



K.—Statement of office work performed from August 1, 1868, to March 1, 1869, being seven months, by two draughtsmen and two copyists, as compared with work to be done by same force during the fall and winter of 1869-70, showing the necessity of additional force in this office.

Character of work.	Plats.	Extent.			Amount.
		<i>Miles.</i>	<i>Chs.</i>	<i>Lks.</i>	
Township plats of subdivisions, 1868-'69.....	12	258	00	91	\$1,290 06
	24	480	10	89	2,400 68
	39	835	17	18	4,176 07
	24	481	30	90	2,406 93
	12	241	01	10	1,205 07
	18	377	34	04	1,887 13
	24	511	60	02	2,558 75
	12	266	57	03	1,333 56
	12	252	12	80	1,260 80
	3	73	65	60	369 10
	9	181	21	03	906 31
	30	601	79	68	3,009 97
Total old work completed*.....	219	4,560	71	18	22,804 43
Total of new work, 1869-'70†.....	348	5,351	00	00	32,106 00
Excess of new work over the old.....	129	790	8	82	9,301 57
Diagrams of exterior lines, 1868-'69.....	2	143	72	96	\$863 47
	2	84	07	42	504 56
	2	84	10	95	504 82
	2	312	38	07	1,874 85
	2	127	74	43	767 58
Total old work completed‡.....	10	752	43	83	4,515 28
Total of new work, 1869-'70†.....	16	2,307	00	00	16,149 00
Excess of new work over the old.....	6	1,554	36	17	11,633 72
Diagrams of standard lines, 1868-'69.....	6	72	40	43	\$725 05
	6	72	59	87	727 48
Total old work completed.....	12	145	20	30	1,452 53
Total of new work, 1869-'70†.....	58	865	00	00	8,680 00
Excess of new work over the old.....	46	722	59	70	7,227 47

\* Transcripts and descriptive lists of each town made by copyists.

† Transcripts and descriptive lists to be made.

‡ Transcripts of each mile made by copyists.

The excess of new over the old work, with the same force, requires five months more time, and would delay some of the surveyor's accounts nine months, showing that an additional draughtsman and copyist are absolutely required to perform the work within a reasonable time after the notes are received.

ROBT. R. LIVINGSTON,

Surveyor General District of Iowa and Nebraska.

SURVEYOR GENERAL'S OFFICE,  
Plattsmouth, August 21, 1869.

## No. 18 F—Annual Report of the Surveyor General of Kansas.

SURVEYOR GENERAL'S OFFICE, DISTRICT OF KANSAS,  
Lawrence, Kansas, September 21, 1869.

SIR: In accordance with your instructions of April 14, 1869, I herewith submit (in duplicate) my annual report of the surveying operations, together with a map showing the progress of surveys in this district, during the fiscal year ending June 30, 1869.

### FIELD WORK.

All surveys contracted for by my predecessor, out of the appropriation of July 20, 1868, are completed. The greater portion of these surveys, on account of the Indian hostilities, was abandoned in the fall of 1868; but an extension of time was granted, and they were executed in the spring of 1869. Contract No. 335, and the subdivisional lines of contract No. 337, were completed in 1868.

Out of special deposits there have been surveyed the strip of public land lying south of the Cherokee Neutral Lands; the twenty acre tract of the Leavenworth Coal Company, situated in the southeast corner of the Fort Leavenworth military reserve;

and a wagon road, one hundred feet wide, along the south side of the Fort Leavenworth military reserve.

Four contracts have been entered into out of the appropriation of March 3, 1869, for surveys in this district. The deputies are now all in the field, and expect to complete their work, if not molested by hostile Indians, on or before the first day of December next. Five men of the surveying party of Armstrong, McClure, and Armstrong, were attacked on the 6th of this month by eleven Cheyenne Indians. These Indians made desperate attempts to kill three of the party, but without success. In the fight the surveyors killed one Indian and wounded two. This one attack will not cause the surveyors to abandon their work. Mr. Armstrong states that they are vigorously prosecuting their surveys.

#### OFFICE WORK.

During the fiscal year ending June 30, 1869, the field-notes of fifty-one townships of subdivisional lines have been transcribed and transmitted to the department.

Plats in triplicate of fifty-one townships were made, and the required copies transmitted to the department and the proper local land offices.

Thirty township plats of the Sac and Fox lands were made, and transmitted to the Topeka land office.

Fifty-one descriptive lists have been prepared and transmitted to the proper local land offices.

A transcript of the field-notes of the base line through ranges forty-one, forty-two, and forty-three west, was made and furnished the surveyor general's office of Nebraska.

Diagrams of the Leavenworth Coal Company's land, and the wagon road along the south boundary of the Fort Leavenworth military reserve, were made and copies transmitted to the department.

Since the first of July, 1869, plats in triplicate and transcripts of field-notes of the subdivisional lines of forty townships have been made, and the required copies transmitted to the department and the proper local land office. Also, transcripts of field-notes and diagram of the exterior lines of forty townships have been made and transmitted to the department.

There are yet remaining in this office of last year's appropriation thirty-three townships of subdivisional lines, three hundred and twelve miles of standard and one hundred and sixty-two miles of exterior lines, of which transcripts of field-notes and plats have to be made.

In connection with the above, the usual amount of miscellaneous business has been performed, of which no detailed statement can well be given.

#### EXTENSION OF PUBLIC SURVEYS.

In my letter submitting estimates for surveys for the fiscal year ending June 30, 1871, I proposed the surveying of all the lands granted to the Kansas Pacific Railway Company that remain as yet unsurveyed. This road is already completed in advance of the line of surveys; and there are now in progress of construction sixty miles, which will carry it beyond the boundary of Kansas.

A petition, signed by nineteen settlers, asking for the surveying of the country lying between the Arkansas River, the north boundary of the Osage trust lands, and the first guide meridian west, has been received in this office. These persons, who have been residing there for two and three years, describe the country as very fertile, and well adapted to cultivation, and say that it is rapidly filling up with a farming population.

This year's immigration exceeds largely that of any preceding one, and the number is estimated at one hundred thousand. There is no doubt of an increase next year. Settlements have been made during the last two years on our most remote western frontier, and beyond the line of surveys.

The above facts, in my opinion, are a sufficient proof that a further extension of public surveys is necessary; and I hope that my estimates for the surveying service will receive a favorable consideration.

#### MISCELLANEOUS.

The estimated area of the State of Kansas is 81,318 square miles, or 52,043,520 acres. Of this there is surveyed 48,318 square miles, or 30,923,520 acres, leaving an area of 33,000 square miles, or 21,120,000 acres, over which the lines of public surveys have yet to be extended.

The area of land covered by Indian reservations or allotments is 8,214.64 square miles, or 5,257,376.47 acres. This estimate does not include the lands owned by the Wyandott, Shawnee, and other Indians not having reservations. These Indians have,

to a great extent, become citizens, and sold part of their lands. Under these circumstances, I am unable to ascertain the correct area of the land yet in their possession.

The following tabular statement exhibits in detail:

	Square miles.	Acres.
Iowa reserve, (as much as lies in Kansas) .....	22.00	14,680.00
Otoe reserve, (as much as lies in Kansas) .....	53.50	34,240.00
Kansas diminished reserve .....	125.64	80,409.06
Sac and Fox diminished reserve .....	240.62	153,997.42
Osage diminished reserve .....	7,380.00	4,723,200.00
Kickapoo diminished reserve .....	29.90	19,137.85
Kickapoo allotment .....	12.98	8,312.14
Pottawatomie (allotted and in common) about .....	350.00	224,000.00
Total .....	8,214.64	5,257,376.47

The area of agricultural land in this State is 60,918 square miles, or 38,977,520 acres, including 17,000 square miles, or 10,880,000 acres of mineral lands. The area of mineral land, and not agricultural land, is 3,000 square miles, or 1,920,000 acres. Total amount of mineral land, 20,000 square miles, or 12,800,000 acres. The grazing lands, principally lying west of the ninety-ninth degree of longitude west of Greenwich, cover an area of 20,400 square miles, or 13,056,000 acres.

Swamp lands and mountain ranges do not exist in the State. In the extreme western and southwest portion there is a small proportion of sterile land, the estimated area of which is 900 square miles, or 576,000 acres; but, by the planting of forest trees and irrigation, the same may be reclaimed.

The area of timber land, as estimated from actual surveys and other reliable data, is 4,000 square miles, or 2,560,000 acres.

Kansas has at present nineteen cities of first and second class, and two hundred and ninety-seven towns.

The aggregate length of railroads completed is seven hundred and forty-four miles; in progress of construction, two hundred and eighty-five miles, and projected, five hundred and eighty-seven miles. Of the roads now in progress of construction, at least one hundred miles will be completed by the first of January next. Some of the projected roads are not permanently located, and, therefore, a change of location may shorten or lengthen the present distances.

Across the Missouri River at Leavenworth the building of a railroad and wagon bridge, of iron sub and superstructure, is in progress. The same is to be completed by next spring.

The following tabular statement exhibits in detail the different railroads in Kansas:

Name of road.	Miles completed.	In progress of construction.	Projected.
Kansas Pacific railway .....	405	30	.....
Leavenworth and Lawrence branch .....	31	.....	.....
Central branch of Pacific .....	100	.....	28
Missouri River road .....	23	.....	.....
Leavenworth, Atchison, and Northwestern .....	21	.....	.....
Leavenworth, Lawrence, and Galveston .....	28	60	65
Missouri River, Fort Scott, and Gulf .....	60	49	60
Topeka and Santa Fé .....	27	32	88
Southern branch of Pacific railroad .....	34	24	78
St. Joseph and Denver .....	15	24	86
Atchison and Nebraska .....	.....	36	.....
Pleasant Hill and Lawrence .....	.....	39	.....
Leavenworth and Topeka .....	.....	.....	47
Leavenworth and Olathe .....	.....	.....	16
Lawrence, Wakarusa, and Denver .....	.....	.....	90
Olathe and Ottawa railroad .....	.....	.....	29
Total .....	744	285	527

The educational interests of Kansas are in a most flourishing condition. No other new State has ever paid equal attention to free schools and other public institutions. The following statements show the condition of our public school system:

There are 1,372 school districts in the State; number of white persons of school ages, 71,160; number of colored persons of school ages, 4,900; number of persons enrolled in



public schools, 45,140, of whom 1,940 are colored children; number of pupils in other than public schools, 2,169; number of male teachers, 746; of female teachers, 855; amount paid for teachers' wages, \$203,878 54; number of school-houses, 953; value of school-houses, \$813,062 75; total productive school fund, \$518,813 79.

Besides the public schools, Kansas has a State university, an agricultural college, a State normal school, a blind asylum, and a deaf and dumb asylum. The Methodists have Baker University; the Congregationalists have Washburn College; the United Brethren, Lane University; the Episcopalians have a female seminary; the New School Presbyterians have Wetmore Institute; the Baptists, Ottawa University; the Old School Presbyterians have Highland University and the Geneva Institute. The Christian denomination is establishing a college at Ottumwa. The Catholics have two colleges, male and female, at Leavenworth, both very large institutions. They also have schools at St. Mary's mission, at St. Bridget, and at the Osage mission.

I have endeavored to procure from our State and county officials statistical information in order to prepare estimates of the productive and commercial resources of the State; but Kansas being without a bureau of statistics, and the officers of the different counties not collecting such information, I am, therefore, left without any data to prepare the desired reports.

During the last year no new discoveries of minerals of any importance have been made. A report of the discovery of immense beds of iron ore, three miles west of Pond Creek, in Western Kansas, has been extensively circulated, but it has never been confirmed. Professor G. C. Swallow, State geologist, in his geological survey of 1866, reports that there are beds of iron in the sandstone of the cretaceous (?) system in Central Kansas; but the sand mingled with the oxide of iron will render the most of it useless for manufacturing purposes. Extensive beds of the same are probably found in the tertiary strata in the western portion of the State. Kaolin has recently been discovered within two miles of Sheridan, the present terminus of the Kansas Pacific road, a specimen of which has been forwarded to your department. Brown coal (or lignite) is mined on the Smoky Hill and its tributaries, and used as fuel by the Kansas Pacific Railway Company. In the eastern counties coal is now mined to a considerable extent, and is found in large quantity and superior quality. The Leavenworth Coal Company, in shafting for coal, discovered, at a depth of three hundred feet, a stratum of marble over twelve feet in thickness, a specimen of which has been forwarded to your department. This marble is a *dolomitic silicate of magnesia*, (pearl spar marble,) a composition more indestructible than Italian marble.

The climate of Kansas and the entire west has undergone vast changes. Every year there has been a noted increase of the fall of rain. From the 1st of January to the 1st of September the aggregate fall of rain was thirty inches, and during June, July and August, nineteen inches, amounting to over six inches more than the mean for thirty-four years. These remarkable changes have unquestionably been brought about by the cultivation of the soil and the planting of forest trees and orchards. Kansas, instead of diminishing its forests, is constantly, by planting and cultivation, increasing them; and the favorable result is already made manifest by the increased productiveness of the soil and the more equal distribution of moisture.

In 1863 all the country lying west of the 6th principal meridian was regarded as subject to drought, and unfit for cultivation; and settlers then residing in that section of the State did not raise enough for home consumption. Now that very country produces from forty to fifty bushels of grain per acre.

In not a very remote time the so-called "Great American Desert" will be inhabited by an industrious population, whose homesteads will be ornamented by shrubbery and hedges, and groves of forest trees and orchards will shade the great plains and hillsides of Kansas.

The crops of the present year are the best and by far the most abundant ever raised in Kansas. Of wheat, corn, oats, barley and potatoes, there has been an immense yield in every part of the State, and there will be a large surplus for exportation. The fruit crop has also been very large, especially of apples, pears, and grapes; peaches not being so plentiful as last year. In Doniphan, Leavenworth, Douglas, and Riley counties there are large vineyards, and considerable attention has been paid to wine-making. The profits from fruit-raising in the older counties are already large.

In conclusion I respectfully invite your attention to the accompanying tabular statements, which form a part of this report:

A.—Names, duties, and salaries of persons employed in the surveyor general's office during the year ending June 30, 1869.

B.—Sums expended for salaries of surveyor general and clerks during the year ending June 30, 1869.

C.—Expenditures of the office during the fiscal year ending June 30, 1869.

D.—Amounts deposited by individuals for the survey of public lands, up to June 30, 1869.

E.—The extent and cost of surveys executed during the year ending June 30, 1869.

F.—Numbers and area of townships, plats and transcripts of field-notes of which

have been transmitted to the department, and plats and descriptive lists furnished the local land offices at Junction City and Humboldt, during the fiscal year ending June 30, 1869.

G.—Numbers and area of townships, plats of which have been furnished the local land office at Topeka, during the year ending June 30, 1869.

H.—Estimated expense, number of miles, and character of work, for which contracts have been entered into, and chargeable to the appropriation of March 3, 1869.

I.—Estimate of sums required for the extension of surveys during the fiscal year ending June 30, 1871.

J.—Estimate of sums required for office expenses for the fiscal year ending June 30, 1871.

I am, sir, very respectfully, your obedient servant,

C. W. BABCOCK, *Surveyor General.*

Hon. JOSEPH S. WILSON,  
*Commissioner General Land Office.*

A.—Statement showing the names, duties, nativity, whence appointed, and rate of compensation per annum, of persons employed in the surveyor general's office of Kansas, during the fiscal year ending June 30, 1869.

Name.	Duty.	Nativity.	Whence appointed.	Term of service.	Salary per annum.
H. S. Sleeper.....	Surveyor general.....	New York	Kansas..	July 1, 1868, to May 26, 1869.	\$2,600
C. W. Babcock.....	do.....do.....	Vermont..	Kansas..	May 27 to June 30, 1869.....	2,000
H. C. Fields.....	Chief clerk.....	Virginia..	Kansas..	Entire year.....	1,600
W. B. Covell.....	Principal draughtsman.	New York	Kansas..	do.....do.....	1,300
John Burr.....	Accountant.....	Connecticut	Kansas..	July 1, 1868, to Mar. 31, 1869	1,200
J. F. Taylor.....	Copyist.....	New York	Kansas..	July 1, 1868, to Aug. 12, 1868	1,100
Elisha Diefendorf.....	do.....	do.....	Kansas..	Nov. 17, 1868, to Mar. 31, 1869.	1,100
James Bicknell.....	Messenger.....	England...	Kansas..	Entire year.....	600

B.—Statement showing the amount expended for salaries of surveyor general and clerks during the fiscal year ending June 30, 1869.

Quarter ending September 30, 1868.....	\$1,653 53
Quarter ending December 31, 1868.....	1,659 51
Quarter ending March 31, 1869.....	1,800 00
Quarter ending June 30, 1869.....	1,071 15
Total.....	<u>6,184 19</u>

C.—Statement showing amount expended for rent of office and incidental expenses during the fiscal year ending June 30, 1869.

Quarter ending September 30, 1868.....	\$428 95
Quarter ending December 31, 1868.....	379 70
Quarter ending March 31, 1869.....	404 85
Quarter ending June 30, 1869.....	421 64
Total.....	<u>1,635 14</u>

#### RECAPITULATION.

Salaries of surveyor general and clerks during the year.....	\$6,184 19
Rent of office and incidental expenses during the year.....	1,635 14
Total.....	<u>7,819 33</u>

D.—Statement showing the amounts deposited by individuals for the survey of public lands up to June 30, 1869.

By whom deposited.	Date of deposit.	Amount of deposit.		
		For cost of survey.	For compensation of clerks.	Total.
Seth J. Child .....	June 27, 1867..	\$75 00	\$25 00	\$100 00
Michael Dwiro .....	Dec. 23, 1867...	35 00	15 00	50 00
S. M. Strickler .....	Feb. 14, 1868...	125 00	125 00	250 00
C. A. Logan .....	Oct. 8, 1868...	20 00	10 00	30 00
M. Rebstein .....	{ Oct. 26, 1868 }	450 00	125 00	575 00
	{ Feb. 12, 1869 }			
C. R. Morehead .....	Mar. 22, 1869..	65 00	25 00	90 00
M. Rebstein .....	May 20, 1869..	150 00	35 00	185 00
Total .....		920 00	360 00	1,280 00



E.—Statement showing the extent and cost of surveys executed in Kansas during the fiscal year ending June 30, 1869, payable out of appropriations for public surveys.

No. of contract.	Names of deputies.	Style of survey.	Standard lines.	Township lines.	Section lines.	Date of appropriation.	Date of contract.	Rate per mile.	Amount for mileage.	Total of contract.
333	Hackbusch and McClure.	Section lines.	Miles.	Miles chs. lvs.	Miles chs. lvs.	July 20, 1868	Aug. 14, 1868	\$5 00	.....	\$6,032 79
334	Armstrong and Taylor.	do.	.....	.....	1,206 44 66	July 20, 1868	Aug. 14, 1868	5 00	.....	6,015 78
335	Angell and Parker.	do.	.....	.....	1,203 12 42	July 20, 1868	Aug. 14, 1868	5 00	.....	6,144 55
336	Wilcox, Mooney, and Burr *	Tp. and section lines.	.....	405 72 35	1,228 72 76	July 20, 1868	Aug. 17, 1868	6 00	\$2,435 43	.....
336	do *	do.	.....	.....	2,130 00 00	July 20, 1868	Aug. 17, 1868	5 00	110,650 00	.....
337	Paul, Paul, and Leecompt.	Std. Tp. and sec. lines	312	162	.....	July 20, 1868	Aug. 18, 1868	10 00	43,120 00	.....
337	do.	do.	.....	.....	966 13 30	July 20, 1868	Aug. 18, 1868	6 00	4972 00	.....
337	do.	do.	.....	.....	.....	July 20, 1868	Aug. 18, 1868	5 00	4,839 83	.....
	Total.	.....	.....	.....	.....	.....	.....	.....	.....	13,065 43
		.....	.....	.....	.....	.....	.....	.....	.....	40,201 38

† Amount estimated.

\* Transcript of field notes, with plats, for section lines, not yet transmitted to General Land Office.

† Transcript of field notes, with plats, not yet transmitted to General Land Office.

Statement showing the extent and cost of surveys executed in Kansas during the fiscal year ending June 30, 1869, payable out of special deposits by individuals.

No. of contract.	Name of deputies.	Style of survey.	Date of deposit.	Date of contract.	Rate per mile.	Amount for mileage.	Total of contract.
(*)	H. C. F. Hackbusch.	Leavenworth Coal Company's lands.	Oct. 8, 1868	Oct. 8, 1868	Special.	.....	\$20 00
338	James W. Miller.	Township and section lines.	{ Oct. 20, 1868 } { Feb. 12, 1869 }	Feb. 12, 1869	do.	.....	450 00
339	Edwin I. Farnsworth.	Wagon road.	Mar. 20, 1869	Mar. 20, 1869	do.	.....	65 00
340	James W. Miller†.	Township and section lines.	May 20, 1869	June 14, 1869	do.	.....	150 00
	Total.	.....	.....	.....	.....	.....	685 00

(\*) Instructions of surveyor general.

† Transcript of field notes, with plats, not yet transmitted to General Land Office.

F.—Statement showing the description of lands and area of same for which duplicate plats and transcripts of field-notes have been transmitted to the department, and triplicate plats and descriptive lists have been furnished the local land office at Junction City, during the fiscal year ending June 30, 1869.

Township and range.	Area.	Plats and field-notes— when transmitted.	Descriptive lists— when transmitted.
	<i>Acres.</i>		
Township 6 south, range 13 west.....	22, 478. 92	August 6, 1868 .....	August 6, 1868.
Township 7 south, range 13 west.....	22, 530. 93	August 6, 1868 .....	August 6, 1868.
Township 8 south, range 13 west.....	22, 798. 09	August 6, 1868 .....	August 6, 1868.
Township 6 south, range 14 west.....	22, 773. 20	August 6, 1868 .....	August 6, 1868.
Township 7 south, range 14 west.....	22, 891. 10	August 6, 1868 .....	August 6, 1868.
Township 8 south, range 14 west.....	22, 988. 12	August 6, 1868 .....	August 6, 1868.
Township 16 south, range 9 west.....	23, 194. 21	December 29, 1868 .....	February 19, 1869.
Township 17 south, range 9 west.....	23, 233. 42	December 29, 1868 .....	February 19, 1869.
Township 18 south, range 9 west.....	23, 317. 01	December 26, 1868 .....	February 19, 1869.
Township 19 south, range 9 west.....	23, 350. 63	December 29, 1868 .....	February 19, 1869.
Township 20 south, range 9 west.....	23, 334. 23	December 29, 1868 .....	February 19, 1869.
Township 16 south, range 10 west.....	23, 018. 68	December 29, 1868 .....	February 19, 1869.
Township 17 south, range 10 west.....	23, 005. 92	December 29, 1868 .....	February 19, 1869.
Township 18 south, range 10 west.....	23, 061. 47	December 29, 1868 .....	February 19, 1869.
Township 19 south, range 10 west.....	23, 036. 79	December 29, 1868 .....	February 19, 1869.
Township 20 south, range 10 west.....	19, 584. 39	December 29, 1868 .....	February 19, 1869.
Township 16 south, range 11 west.....	23, 064. 16	December 29, 1868 .....	February 19, 1869.
Township 17 south, range 11 west.....	22, 939. 26	December 29, 1868 .....	February 19, 1869.
Township 18 south, range 11 west.....	22, 957. 24	December 29, 1868 .....	February 19, 1869.
Township 19 south, range 11 west.....	22, 970. 15	December 29, 1868 .....	February 19, 1869.
Township 20 south, range 11 west.....	4, 306. 32	December 29, 1868 .....	February 19, 1869.
Township 16 south, range 12 west.....	23, 188. 85	December 29, 1868 .....	February 19, 1869.
Township 17 south, range 12 west.....	23, 034. 94	December 29, 1868 .....	February 19, 1869.
Township 18 south, range 12 west.....	23, 967. 00	December 29, 1868 .....	February 19, 1869.
Township 19 south, range 12 west.....	20, 691. 15	December 29, 1868 .....	February 19, 1869.
Township 18 south, range 13 west.....	22, 998. 90	December 29, 1868 .....	February 19, 1869.
Township 19 south, range 13 west.....	19, 771. 94	December 29, 1868 .....	February 19, 1869.
Township 20 south, range 13 west.....	428. 90	December 29, 1868 .....	February 19, 1869.
Township 11 south, range 22 west.....	23, 001. 53	February 1, 1869 .....	February 19, 1869.
Township 12 south, range 22 west.....	22, 947. 37	February 1, 1869 .....	February 19, 1869.
Township 6 south, range 23 west.....	22, 716. 25	February 1, 1869 .....	February 19, 1869.
Township 7 south, range 23 west.....	22, 966. 35	February 1, 1869 .....	February 19, 1869.
Township 8 south, range 23 west.....	22, 975. 19	February 1, 1869 .....	February 19, 1869.
Township 9 south, range 23 west.....	22, 960. 62	February 1, 1869 .....	February 19, 1869.
Township 10 south, range 23 west.....	23, 002. 40	February 1, 1869 .....	February 19, 1869.
Township 11 south, range 23 west.....	23, 081. 75	February 1, 1869 .....	February 19, 1869.
Township 12 south, range 23 west.....	22, 951. 54	February 1, 1869 .....	February 19, 1869.
Township 6 south, range 24 west.....	23, 007. 71	February 1, 1869 .....	February 19, 1869.
Township 7 south, range 24 west.....	23, 136. 20	February 1, 1869 .....	February 19, 1869.
Township 8 south, range 24 west.....	23, 084. 83	February 1, 1869 .....	February 19, 1869.
Township 9 south, range 24 west.....	22, 948. 30	February 1, 1869 .....	February 19, 1869.
Township 10 south, range 24 west.....	22, 975. 22	February 1, 1869 .....	February 19, 1869.
Township 11 south, range 24 west.....	22, 895. 88	February 1, 1869 .....	February 19, 1869.
Township 12 south, range 24 west.....	22, 849. 73	February 1, 1869 .....	February 19, 1869.
Total.....	962, 416. 70		

Statement showing the description of lands and area of same, for which duplicate plats and transcripts of field-notes have been transmitted to the department, and triplicate plats and descriptive lists have been furnished to the local land office at Humboldt, during the fiscal year ending June 30, 1869.

Fractional township and range.	Area.	Plats and field-notes— when transmitted.	Descriptive lists— when transmitted.
	<i>Acres.</i>		
Fractional township 35 south, range 23 east..	8, 486. 61	June 15, 1869.....	June 17, 1868.
Fractional township 34 south, range 24 east..	8, 524. 03	June 15, 1869.....	June 17, 1868.
Fractional township 35 south, range 25 east..	8, 125. 46	June 15, 1869.....	June 17, 1868.
Total.....	25, 136. 10		

G.—Statement showing the description of lands and area of same for which township plats have been furnished the local land office at Topeka, during the fiscal year ending June 30, 1869.

Township and range.	Area.	Township plats, when trans- mitted.	Remarks.
	<i>Acres.</i>		
Township 15 south, range 13 east.....	1,609.20	June 8, 1869....	Sac and Fox trust lands.
Township 16 south, range 13 east.....	20,863.34	June 8, 1869....	Do.
Township 17 south, range 13 east.....	20,931.31	June 8, 1869....	Do.
Township 18 south, range 13 east.....	21,252.55	June 8, 1869....	Do.
Township 19 south, range 13 east.....	4,779.88	June 8, 1869....	Do.
Township 15 south, range 14 east.....	1,759.07	June 8, 1869....	Do.
Township 16 south, range 14 east.....	23,088.47	June 8, 1869....	Do.
Township 17 south, range 14 east.....	23,052.14	June 8, 1869....	Do.
Township 18 south, range 14 east.....	23,001.72	June 8, 1869....	Do.
Township 19 south, range 14 east.....	5,530.47	June 8, 1869....	Do.
Township 15 south, range 15 east.....	1,889.41	April 14, 1869....	Sac and Fox trust lands and diminished reserve.
Township 16 south, range 15 east.....	22,718.60	April 14, 1869....	Do.
Township 17 south, range 15 east.....	22,780.98	April 14, 1869....	Do.
Township 18 south, range 15 east.....	22,941.60	April 14, 1869....	Do.
Township 19 south, range 15 east.....	5,919.27	April 14, 1869....	Do.
Township 15 south, range 16 east.....	1,969.01	April 14, 1869....	Do.
Township 16 south, range 16 east.....	22,668.48	April 14, 1869....	Do.
Township 17 south, range 16 east.....	22,637.99	April 14, 1869....	Do.
Township 18 south, range 16 east.....	22,845.31	April 14, 1869....	Do.
Township 19 south, range 16 east.....	6,013.94	April 14, 1869....	Do.
Township 15 south, range 17 east.....	2,081.12	April 14, 1869....	Do.
Township 16 south, range 17 east.....	22,870.54	April 14, 1869....	Do.
Township 17 south, range 17 east.....	23,068.52	April 14, 1869....	Do.
Township 18 south, range 17 east.....	23,034.40	April 14, 1869....	Do.
Township 19 south, range 17 east.....	5,887.12	April 14, 1869....	Do.
Township 15 south, range 18 east.....	1,378.43	June 8, 1869....	Sac and Fox trust lands.
Township 16 south, range 18 east.....	16,723.24	June 8, 1869....	Do.
Township 17 south, range 18 east.....	17,160.43	June 8, 1869....	Do.
Township 18 south, range 18 east.....	17,265.58	June 8, 1869....	Do.
Township 19 south, range 18 east.....	4,335.19	June 8, 1869....	Do.
Total.....	432,197.31		

H.—Statement showing the expense, (estimated,) number of miles, and character of work for which contracts have been entered into for surveying in Kansas, and chargeable to appropriation for such surveys approved March 3, 1869.

Number of con- tract.	Name of deputy.	Standard lines.	Township lines.	Section lines.	Rate per mile.	Estimated cost.
341	Diefendorf and Cosgray.....	312	.....	.....	\$10 00	\$3,120 00
341	Diefendorf and Cosgray.....	.....	240	.....	6 00	1,440 00
341	Diefendorf and Cosgray.....	.....	.....	840	5 00	4,200 00
342	Armstrong, McClure and Armstrong.....	.....	402	.....	6 00	2,412 00
342	Armstrong, McClure and Armstrong.....	.....	.....	2,400	5 00	12,000 00
343	Mitchell and Mitchell.....	.....	.....	840	5 00	4,200 00
344	Wilcox and Mooney.....	.....	.....	1,980	5 00	9,900 00
	Total.....	312	642	6,060	.....	37,272 00



*I.—Estimate of sums required for the extension of surveys in the State of Kansas for the fiscal year ending June 30, 1871.*

Surveys estimated.	Miles.	Rate.	Cost.
For running the first, second, third, and fourth standard parallels south, from the fifth guide meridian west, to the west boundary of Kansas.	70	\$10 00	\$700 00
For running the first guide meridian west, from the fifth standard parallel, to the north boundary of the Osage trust lands.	4	10 00	40 00
For running the second and third guide meridians west, from the fourth standard parallel south, to the north boundary of the Osage trust lands, and the fifth standard parallel south, from the first to the third guide meridian west.	164	10 00	1,640 00
For running exterior lines as shown on the accompanying diagram.	1,904	6 00	11,424 00
For running subdivisional lines as shown on the accompanying diagram.	10,332	5 00	51,660 00
Total.....			65,464 00

*J.—Estimate of sums required for office expenses for the fiscal year ending June 30, 1871.*

Salary of surveyor general .....	\$2,000 00
Salary of chief clerk.....	1,600 00
Salary of principal draughtsman.....	1,300 00
Salary of assistant draughtsman.....	1,200 00
Salary of accountant.....	1,200 00
Salary of copyist.....	1,100 00
Messenger, rent, and other incidental expenses.....	2,000 00
Total.....	10,400 00

*No. 18 G.—Annual report of the surveyor general of New Mexico.*

SURVEYOR GENERAL'S OFFICE,

*Santa Fé, New Mexico, August 19, 1869.*

SIR: In accordance with your instructions of April 14, 1869, I have the honor to submit my report of the transactions of this office for the year ending June 30, 1869, with such remarks upon the wants and resources of this district as the brief tenure of my office will enable me to make.

SURVEYS.

No surveys of the public lands have been made during the year.

The boundary line between New Mexico and Colorado has been established, directly through your office, and a few military reservations have been surveyed by an officer detailed from the army.

A single application has been made for the survey of private grants, that of Beaubier & Miranda, a contract for the execution of which awaits the approval of your office.

One application has been made for a mineral survey—that of the Santa Rita del Cobre mine. The demand for this class of surveys not as yet requiring more than one appointment, I have appointed R. B. Willison, esq., deputy mineral surveyor for this district.

A contract has been entered into for the extension south twenty-four miles of the second guide meridian, and extension east from it of the first correction line north through three ranges, as well as for the survey of the exterior and subdivisional lines of several townships of land lying along the Pecos River, north of the Bosque Redondo Indian reservation, which surveys will about exhaust the appropriation of five thousand dollars placed at my disposal for the current fiscal year.

The failure of Congress to make for this fiscal year any appropriation for the payment of translator, draughtsman, and clerks, will greatly embarrass the operations of the office for the current year. Work upon the map of the Territory to accompany this report, ordered in your letter of April 14, has to be suspended; plats and office work which will be necessary upon the completion of surveys contracted for will be with difficulty done. The large arrears of clerical work which I found on taking possession of the office will, I fear, be increased. The amount of one thousand five hundred dollars assigned by your office to supply this deficiency cannot well be made to cover the expense of a translator for the year.

In view of these facts, it is urgently requested that early application be made to Congress to supply the deficiency referred to, so that the necessary work of the office may be efficiently prosecuted.

#### SPANISH AND MEXICAN LAND GRANTS.

New Mexico presents many features peculiar to none of the other Territories of the United States. Christian civilization had been planted here by the heroism and enterprise of the Spaniard before the landing of the Pilgrim Fathers on Plymouth Rock. Santa Fé was a town, no doubt as populous as to-day, of fabulous age, when first visited by the Spaniard. The existing pueblos or Indian towns, some twenty in number, were, with many others at present extinct, then as populous as now.

After the return of the Spaniard, following his expulsion in 1680, he made to each of these pueblos a grant of land, which, by occupancy and cultivation, its inhabitants had long possessed. At this early period to communities and colonists were given grants of land to promote settlement, ordinarily upon one or both banks of some stream and extending to the mountain ranges. To individuals, in like manner, numerous grants were made, either as the reward for services rendered or benefits anticipated.

These grants, made prior to 1680, had to be renewed after the return of the Spaniard, as with his expulsion all records were removed or destroyed. From that time forth this Territory has been parceled out to the favorites of fortune, until nearly half of its most inviting valleys are covered with some grant or claim. Nearly or quite the whole valley of the Rio Grande, traversing the Territory from north to south, is occupied or claimed under some of these grants, though a survey and segregation of the legal grants would, it is believed, restore to the United States many thousands of acres of the best lands of the Territory. The same holds true, in a degree, of other valleys.

Of the nineteen pueblo grants confirmed by Congress three remain unsurveyed—and are likely to so remain—in consequence of the inability of the inhabitants to pay for the survey. Those surveyed have been done at the expense of the government, before the passage of the act of June 2, 1862, requiring it to be done at the expense of the owners.

Of the private land claims—covering, many of them, a large and entirely unascertained quantity of land, often as large as some of the smaller States of the Union—only fourteen of the eighty-four filed in this office have been surveyed, and of these only two since required by law to be done at the expense of the claimant.

In addition to these eighty-four, so filed, there are, perhaps, as many as twenty-five or more unclaimed by owners among the papers which were turned over to this office from the archives of the Territory. Besides the claims already filed, from the best information I can obtain, there are, no doubt, at least as many more grants not yet filed.

The belief seems to obtain among many of the holders of these grants that they have already perfect titles. So long as they are left in undisputed possession they will refuse to incur the expense of surveys.

The neglect for so many years to separate by surveys their lands from the public domain shows what may be expected in the future. Delay but invites the fabrication of fraudulent claims, which retards the settlement of the Territory.

The influx of the Anglo-Saxon—the beneficent effect of the abolition of the former system of labor, or peonage—is infusing into the masses a desire to become owners of the soil, as manifested in almost daily applications for information as to the manner and means of securing homes under the pre-emption and homestead laws.

The fact that the public surveys have been extended over a small portion only of the Territory, and the utter impossibility of determining the extent of grants, tends to defeat the ends of those most salutary laws, the settlement and improvement of the country, and the development of its wealth and population.

In making surveys where required by the advance of settlement or by prospective demand, there is a constant liability of extending the lines over these claims. Once surveyed, put in market, occupied by the pre-emptor, the homestead seeker, or the absolute purchaser—the occupant in good faith upon them—is, after the lapse of an indefinite time, liable to be met by the owner or owners of some of these grants with a conflicting title.

A glance at the map of New Mexico will at once reveal the incongruity of the outlines of the grants with the public land-surveying system of the United States; they appear as so many deformities. Their survey can only be connected with the system of this government by an immense number of irregularly shaped lots, adding thereby greatly to the labor and cost.

Some legislation seems absolutely necessary to force all claimants, under grants of whatever kind, who have not already done so, to file the same within some specified time. I would in this connection recommend the application to this Territory of the provisions of the act of Congress “to ascertain and settle the private land claims in the State of California,” approved March 3, 1851, wherein it is declared that all lands the claims to which shall not have been presented within two years after the date of

the passage of the act shall be deemed, held, and considered as part of the public domain of the United States.

The examination into the validity of these grants, being in the nature of a judicial proceeding, might much more appropriately be confided to the federal judicial officers of this district. Either this disposition should be made of them or a distinct commission appointed to examine and determine their validity.

It would seem far better henceforth to require the claimant to conform to the ordinary rectangular lines of the public surveys in selecting the amount of land to which he may be entitled by virtue of a confirmed grant, always following those lines nearest his established boundaries. Were this system adopted, no delay need occur in prosecuting the public surveys, provided the cost of survey of grants be made a lien upon the land, to be repaid before a patent should issue for the same.

It is constantly claimed—and with much show of justice—that, under the treaty of Guadalupe Hidalgo, which in its Article VIII declares, "Mexicans now established in territories previously belonging to Mexico, and which remain for the future within the limits of the United States, as defined by the present treaty, shall be free to continue where they now reside or to remove at any time to the Mexican republic, retaining the property which they possess in the said territories, or disposing thereof and removing the proceeds wherever they please, *without their being subjected on this account to any contribution, tax, or charge whatever,*" it is the duty of the United States government to make all surveys and titles free of cost to the claimants.

Unless something be promptly done to determine these various claims, and to extend the public surveys, we shall be illy prepared to meet the wants of the great wave of immigration so rapidly advancing to avail itself of a region possessing a climate as mild and salubrious in its higher altitudes as the world affords, and in the more southerly portion one of a temperature tropical in its heats; a section capable of furnishing in abundance the fruits and products of those latitudes, and throughout all its broad mesas furnishing pasturage in winter as well as in summer that might supply the world with wool, while its valleys can produce an abundance of vegetables and cereals for a large population. There is scarcely one of the many peaks of the Rocky Mountains, out of sight of one or more of whose summits the traveler never finds himself, whether traversing the Territory from north to south or from east to west, which is not rich in mineral wealth.

Already the numerous railways pointing westward to the Pacific from the lower Mississippi are warmly competing for precedence in securing the trade of, and the feasible route through, this Territory. Large sums have been expended in surveys, volumes of information have been published, all establishing beyond controversy the vast superiority of the several lines through New Mexico over all others further north. With reasonable aid from the government, the best line across the continent will soon build up whole towns, cities, and States, upon these mesas, valleys, and peaks of the Rocky Mountains.

#### RESERVATIONS.

The present policy of confining the Indians to reservations, effectually carried out, will remove one of the great obstacles to the diffusion of the agricultural population and the development of the vast mineral wealth of the Territory.

The reservation of forty miles square, embracing Fort Sumner, made for the Navajo and Apache Indians at the Bosque Redondo, being now abandoned and the Navajoes removed to another reservation, should be restored to the body of the public domain, surveyed, and thrown open to settlement. The same remark and recommendation are applicable to the Apache reservation at Santa Lucia Spring, on the head-waters of the Gila River, and the military reservation of Fort Butler, having been abandoned by the military, should also be annulled, and the seventy-six thousand eight hundred acres it embraces in like manner and for like purpose restored.

#### MINES AND MINING.

The principal places in this Territory where the precious metals are known to exist are the following: Old and New Placers, Pinos Altos, Cimarron mining district, Arroyo Hondo, Manzano and Organ Mountains, Sierras Blanca, Carriza and Jicarilla, Abiquiu, and the Mogollon and Magdalena Mountains.

The mineral region of the Old and New Placers, lying in Santa Fé and Bernalillo Counties, extends over about two hundred square miles, of which about one hundred and sixty miles are embraced by the Ortiz, San Pedro, and Cañon del Agua private land claims. Within this district are a great number of lodes of gold-bearing quartz, among which are the Ortiz, Santa Candelaria, Mammoth, Ramirez, &c. There are many other lodes known to miners, but as they are within the limits of the above-named claims the discoverers will not develop them until they can be assured of some return for their labor.

Throughout the whole extent of this district are rich placer mines that are worked in the spring, when a small amount of water can be obtained from the melting snow.



There is a ditch projected from the Pecos River to the mines, a distance of seventy miles. Its probable cost will be four hundred thousand dollars, but millions of dollars will be taken from the placers and mines when it is completed.

The New Mexican Mining Company have their works at the Placer de Dolores, and are working upon ore obtained from the Ortiz lode. They have in operation and in process of erection forty stamps. The yield of the ore is from twelve to fifteen dollars per ton.

At the Placer de San Francisco is a ten-stamp mill, which is running on ore from the Santa Candelaria lode, the yield of which is about thirty-five dollars per ton.

The Pinos Altos mining district lies in the county of Grant, and extends over about two hundred square miles, and embraces within its limits gold, silver, and copper mines. The principal gold mines are the Pacific, Arizona, Atlantic, Pacific No. 2, Langston, and Aztec. In width they are from a few inches to four feet. In all the lodes the pay ore is in chimneys, some of which are very rich. Thirty pounds of quartz from the Langston lode recently averaged fifty dollars to the pound. The ore from these lodes is generally partly decomposed in the upper portion of the veins, and changes to sulphurets at the depth of one hundred feet. The placer mines are rich, but sufficient water for their complete working cannot be obtained. There are about fifty stamps in operation in this district.

The silver ore, so called, is an antimonious mixture of lead and zinc, accompanying the black sulphuret of lead, and contains from twenty to thirty dollars per ton of silver.

The copper mines are found in a belt of feldspathic rock, two miles in width, and extending in a direction of north  $15^{\circ}$  west, for about twenty miles. Throughout this belt the copper ore is found in segregated veins, and consists of oxide of copper, green malachite, and virgin copper.

The mines that have been worked are the San José, Hanover, Guadalupe, and Santa Rita. Of these the only one at present worked is the Santa Rita, from the ore of which about three thousand pounds of regulus is produced per week. The prospective value of these mines is great.

In the Organ Mountain, in the county of Doña Ana, is the Stephenson mine, which has been worked to a considerable extent. The ore from this mine contains eighty per cent. of lead, and yields about fifty dollars per ton in silver.

The Cimarron mining district embraces four hundred square miles, and was formed in the summer of 1867. A ditch, thirty-seven miles in length, has been constructed, and furnishes a limited supply of water for the working of a number of gulches. Two hundred and fifty inches is now being sold, and a thousand inches would be used if it could be supplied.

There are now running and in course of erection forty-three stamps in this district. A fifteen-stamp mill, upon the celebrated Maxwell lode, has given the large amount of fifteen thousand dollars in a single week's run, on the ore from a rich chimney. No ore from this lode has yielded less than thirty dollars per ton.

The Arroyo Hondo mining district, in the northern portion of this Territory, contains a number of gold and silver-bearing quartz lodes, among which are the Chimborazo, Teesell and Henk lodes, the property of the Arroyo Hondo Mining Company. This company is erecting a twenty-stamp mill, which will be driven by water-power.

In the vicinity of Abiquiu, in the county of Rio Arriba, it has recently been discovered that the alluvial drift contains a considerable amount of washed gold, and miners are making from two to five dollars a day by sluicing.

In the Manzano Mountains are found copper, silver and gold mines. The Carson lode of gold-bearing rock has been opened to the depth of sixty feet, and assays from sixty to twelve hundred dollars per ton. This lode is evidently an aqueous deposit. The claimants are bringing a ten-stamp mill to work the ore from this mine.

The Sierras Blanca, Carriza, and Jicarilla, in the new county of Lincoln, contain both quartz and placer mines. The latter have been worked to some extent, and, with proper facilities for working them, would yield an immense amount of gold. A number of lodes recently discovered in the Sierra Blanca give promise of being among the richest in the Territory.

Copper mines of great extent and richness are known to exist in the Sierra Mogollon, near the boundary of this Territory and Arizona, but the hostility of the Indians prevents their development.

Recent discoveries have been made in the Magdalena Mountains, in Socorro County, of copper and silver mines. Some ten veins have been opened, and the ore has assayed from five to seven hundred dollars per ton of ore in silver. No works have yet been erected for reducing the ore from these mines.

The mining interests of this Territory are developing rapidly, and everything indicates that in a few years New Mexico will rank among the first portions of the Union in the amount of the precious metals produced.

While private enterprise has accomplished so much, it has rendered but too apparent the importance of a thorough geological and mineralogical survey at the hands of the government.

## ACCOMPANYING DOCUMENTS.

The documents accompanying this report are the following:

- A. Descriptive list of all the townships which have been surveyed in this district.
- B. Same of all the confirmed Indian pueblos and private land claims.
- C. Statement of the amounts and condition of all deposits hitherto made by claimants for the execution of surveys in this district.
- D. Statement of expenditures in the office on account of salaries during the last fiscal year.
- E. Same on account of incidental expenses for the same period.
- F. Estimates of appropriations required for the service in the district for the fiscal year ending June 30, 1871.

Very respectfully, your obedient servant,

T. RUSH SPENCER,  
*Surveyor General.*

Hon. JOSEPH S. WILSON,  
*Commissioner of the General Land Office.*

B.—Statement of all the confirmed Indian pueblo grants and private land claims which have been surveyed in the district of New Mexico.

Designation.	Name of tract.	Confirmer.	Area in acres.	Total.
A	Pueblo of Iemez .....	Inhabitants of the pueblo.....	17,510.45	453,427.48
C	Pueblo of San Juan .....	do.....do.....	17,544.77	
D	Pueblo of Picuris .....	do.....do.....	17,460.69	
E	Pueblo of San Felipe.....	do.....do.....	34,766.86	
F	Pueblo of Pecos.....	do.....do.....	18,763.33	
G	Pueblo of Cochiti.....	do.....do.....	24,256.50	
H	Pueblo of Santo Domingo.....	do.....do.....	74,743.11	
I	Pueblo of Taos.....	do.....do.....	17,360.55	
K	Pueblo of Santa Clara.....	do.....do.....	17,368.52	
L	Pueblo of Tesuque.....	do.....do.....	17,471.12	
M	Pueblo of San Ildefonso.....	do.....do.....	17,292.64	
N	Pueblo of Pojoaque.....	do.....do.....	13,520.38	
O	Pueblo of Zia.....	do.....do.....	17,514.63	
P	Pueblo of Sandia.....	do.....do.....	24,187.29	
Q	Pueblo of Isleta.....	do.....do.....	110,080.31	
R	Pueblo of Nambe.....	do.....do.....	13,586.33	
1	San Juan Baptista del Ojito del Rio de las Gallinas.....	Preston Beck, jr.....	318,699.72	
2	Town of Tomé.....	Inhabitants of the town.....	121,594.53	
7	Town of Tecolote.....	do.....do.....	21,636.83	
8	Los Trigos.....	Representatives of Francisco Trujillo <i>et al.</i> .....	12,545.66	
10	Nuestra Señora de la Luz.....	John Lamy, Bishop of N. Mexico.....	16,546.85	
11	Town of Chilili.....	Inhabitants of the town.....	38,435.14	
13	Town of Tecolote.....	do.....do.....	194,663.75	
14	San Pedro.....	José Serafin Ramirez.....	35,911.63	
16	Rancho of the pueblo of San Cristoval.....	E. W. Eaton, assignee.....	27,854.06	
20	Town of Las Vegas.....	Inhabitants of the town.....	496,446.96	1,846,246.78
20	Location number two.....	Heirs of Luis Maria Baca.....	99,289.39	
29	Town of Antonchico.....	Inhabitants of the town.....	389,662.72	
43	Ortiz Mine.....	Elisha Whittlesey <i>et al.</i> .....	69,458.33	
70	Canon del Agua.....	José Serafin Ramirez.....	3,501.21	2,299,674.26

SURVEYOR GENERAL'S OFFICE,  
*Santa Fé, New Mexico, August 19, 1869.*

T. RUSH SPENCER, *Surveyor General.*

C.—*Private land and mineral claim survey deposits in account with the United States.*

Dr.				Cr.			
1866. Sept. 17	For cost of field work, Carey's deposit.....	\$703 91		1866. Aug. 9	By Asa B. Carey, for the survey of the San Pedro and Cañon del Agua private land claims—field work...	\$936 00	
Sept. 18	For amount refunded in excess of field work, Carey's de- posit.....	232 02		Aug. 9	By same, for same— office work.....	200 00	
1867. Jan. 5	For cost of office work, Carey's deposit.....	197 35		1869. May 31	By Lucien B. Maxwell, for the survey of the Beaubier and Miran- da private land claim —field work.....	5,000 00	\$1, 136 00
Jan. 24	For amount refunded in excess of office work, Carey's de- posit.....	2 65	\$1, 136 00	May 31	By same, for same— office work.....	500 00	5, 500 00
1869. June 30	Balance remaining on deposit.....		5, 600 00	June 18	By William Rosenthal, for the survey of the Santa Rita del Cobre mineral claim—notice and field and office work.....		100 00
			6, 736 00				6, 736 00

SURVEYOR GENERAL'S OFFICE,  
*Santa Fé, New Mexico, August 19, 1869.*

T. RUSH SPENCER, *Surveyor General.*

D.—*Statement of expenditures in the office of the surveyor general of New Mexico for salaries during the fiscal year ending June 30, 1869.*

Fiscal quarter.	Name.	Position.	Salary.	Time employed.		Amount.
				From— inclusive.	To— inclusive.	
First...	John A. Clark .....	Surveyor general.....	\$3, 000	July 1....	August 25.....	\$456 52
First...	Benjamin C. Cutler...	Surveyor general.....	3, 000	August 26..	Sept. 30....	293 48
First...	David J. Miller .....	Chief clerk and translator...	2, 000	July 1....	Sept. 30....	500 00
First...	Cyrus H. DeForrest...	Draughtsman .....	1, 500	July 1....	Sept. 30....	375 00
First...	Ferdinand Diekert...	Draughtsman .....	1, 500	August 3...	August 25.....	93 75
First...	William F. Heller.....	Clerk .....	1, 200	August 17..	Sept. 30....	136 95
First...	Charles B. Magruder...	Clerk .....	1, 200	Sept. 1....	Sept. 13....	42 39
Second.	Benjamin C. Cutler...	Surveyor general.....	3, 000	October 1..	October 18....	146 74
Second.	Cyrus H. DeForrest...	Draughtsman .....	1, 500	October 1..	Dec. 31....	375 00
Second.	David J. Miller .....	Chief clerk and translator...	2, 000	October 1..	Dec. 31....	500 00
Second.	William F. Heller.....	Clerk .....	1, 200	October 1..	Dec. 15....	247 83
Third...	David J. Miller .....	Chief clerk and translator...	2, 000	January 1..	March 31....	500 00
Third...	Cyrus H. DeForrest...	Draughtsman .....	1, 500	January 1..	March 31....	375 00
Fourth.	T. Rush Spencer.....	Surveyor general.....	3, 000	April 15....	June 30....	634 61
Fourth.	David J. Miller .....	Chief clerk and translator...	2, 000	April 1....	June 30....	500 00
Fourth.	Cyrus H. DeForrest...	Draughtsman .....	1, 500	April 1....	June 30....	375 00
	Total during the fiscal year.....					5, 552 27

T. RUSH SPENCER,  
*Surveyor General.*

SURVEYOR GENERAL'S OFFICE,  
*Santa Fé, New Mexico, August 19, 1869.*



E.—Statement of incidental expenditures in the office of the surveyor general of New Mexico during the fiscal year ending June 30, 1869.

Fiscal quarter.	Name.	Consideration.	Time.		Amount.	Remarks.
			From— inclusive.	To— inclusive.		
First...	John A. Clark .....	Sundries .....			\$55 00	Per vouchers accom-
						panying account.
First...	Benjamin C. Cutler..	Sundries .....			28 66	Do.
First...	Luis Gold .....	Rent of office..	July 1 ..	Sept. 30 ..	100 00	
Second	Luis Gold .....	Rent of office..	October 1 ..	Dec. 31 ..	100 00	
Second	David J. Miller .....	Sundries .....			110 90	Do.
Third...	David J. Miller .....	Sundries .....			88 40	Do.
Third...	Luis Gold .....	Rent of office..	January 1 ..	March 31 ..	100 00	
Fourth	Luis Gold .....	Rent of office..	April 1 ..	June 30 ..	100 00	
Fourth	T. Rush Spencer .....	Sundries .....			101 86	Do.
Fourth	C. D. Scofield .....	Repairs, &c. ....			49 25	
	Total during the	fiscal year .....			834 07	

T. RUSH SPENCER,  
Surveyor General.

SURVEYOR GENERAL'S OFFICE,  
Santa Fé, New Mexico, August 19, 1869.

F.—Estimates of appropriations required for the surveying service in the district of New Mexico for the fiscal year ending June 30, 1871.

For salary of the surveyor general .....	\$3,000 00
For salary of the chief clerk and translator.....	2,000 00
For salary of the draughtsman.....	1,800 00
For salary of the clerk.....	1,800 00
For incidental expenses—rent, messenger, fuel, stationery, and others.....	1,200 00
For public surveys—continuing the survey of standard, township, and sub- divisional lines.....	40,542 00
Total.....	50,342 00

T. RUSH SPENCER, Surveyor General.

SURVEYOR GENERAL'S OFFICE,  
Santa Fé, New Mexico, August 19, 1869.

No. 18 H.—Annual report of the surveyor general of Colorado.

SURVEYOR GENERAL'S OFFICE,  
Denver, C. T., August 2, 1869.

SIR: I have the honor to submit the following report of the surveying service in this district for the year ending June 30, 1869.

Statement marked A shows the surveys made during the year ending June 30, 1869.

Statement marked B shows the surveys made under the acts of March 2, 1867, and June 8, 1868.

Statement marked C shows the surveys of mineral claims surveyed under the act of July 26, 1866, together with the amount of money deposited to pay for surveying the same.

Statement marked D contains the amount of salaries paid the surveyor general and clerks, and incidental expenses for the year ending June 30, 1869.

Statement marked E contains the number of townships surveyed during the year ending June 30, 1869, and the area of public land contained in the same.

The surveying service was somewhat interrupted during the summer by hostile Indians, who, in some instances, drove in the parties; the deputies, however, returned and completed their work, when it was highly dangerous to do so.

During the past year emigration has been greatly on the increase, and bids fair this year to greatly exceed that of any preceding year.

The production of gold and silver in this district is largely on the increase, and has nearly doubled last year's production, and the mining interests of Colorado were never on so favorable a basis as at the present time.

The Denver Pacific railroad is graded from Denver to Cheyenne, and will be completed during the present year.

In coal a great many recent discoveries have been made, and good coal has been found on the east side of the Platte River, some seven miles from Denver. It has been very justly asserted that the natural prosperity of a country can be ascertained by its richness or poverty in the possession of coal mines. The chief motive power which does all physical work, independent of that achieved by the muscles of men and animals, is heat; fuel, therefore, is the most important element in all the industries which create the wealth of a people. It is also a remarkable fact that this mineral fuel is most abundantly diffused over the temperate regions of the northern hemisphere, as if the nations who are now the most civilized had naturally settled around beds of coal—that most powerful agent of civilization and progress.

The deposit of coal in this Territory is one of vast extent, and will in time be of immense value in smelting and reducing the precious as well as the baser metals.

The pastoral advantages of this Territory are very fine, the stock needing no food cured for them during the summer to subsist them during the winter, the dry atmosphere curing the grass at its maturity. The cultivated portions produce wonderfully, giving a large return to the farmer for his labor.

The extent of land that can be cultivated is only limited by the amount of water in our rivers, as the fall of them is so great that it can be carried almost anywhere by irrigating ditches, and this, too, at a small cost.

In the mountains, all over them, are fine parks, and, in fact, any amount of land that can be cultivated.

In some of the drier portions of the plains artesian wells might be sunk without much difficulty, the strata being favorable to drilling, and the problem solved whether or not a supply of water could be obtained at a reasonable depth. The mineral claim surveys have largely increased, and within the coming year will at least double that of the preceding one.

Very respectfully, your obedient servant,

W. W. LESSIG,  
*Surveyor General of Colorado.*

Hon. JOSEPH S. WILSON,  
*Commissioner of the General Land Office.*

*A.—Statement of surveys made under the appropriation for the fiscal year ending June 30, 1869.*

Names of deputies.	No. of contract.	Extent.	Cost.	Remarks.
Wm. Ashley.....	48	<i>Mil's. ch's. Uts.</i> 18 00 00 295 12 17 421 45 04	\$270 00 3,545 33 4,215 62	Standard lines. Township lines. Subdivision lines.
Adams M. Fahringer.....	49	844 14 62	8,066 19	Subdivision lines.
Geo. H. Hill.....	50	48 00 00 119 68 78 359 75 19	720 00 1,438 31 3,599 40	Standard lines. Township lines. Subdivision lines.
C. A. Deane.....	51	96 00 00	1,440 00	Standard lines.
Geo. V. M. Boutelle.....	52	126 40 90	1,899 72	Standard lines.
E. H. Kellogg.....	53	29 40 00 36 02 25 114 64 94	442 50 433 33 1,148 00	Standard lines. Township lines. Subdivision lines.
E. D. Bright.....	54	751 50 66	7,815 07	Subdivision lines.
Thomas M. Field.....	55	92 77 48	1,115 62	Township lines.
Wm. N. Byers.....	56	17 79 74 60 00 89	215 95 600 11	Township lines. Subdivision lines.
Jacob H. Martz.....	57	302 04 37	3,018 86	Subdivision lines.
E. L. Berthoud.....	58	37 21 55	372 68	Subdivision lines.
D. H. Goodwin.....	59	60 04 55	600 56	Subdivision lines.

*B.—Statement showing surveys made under acts of Congress of March 2, 1867, and June 8, 1868.*

Town site.....	Granite.
County.....	Lake.
Amount deposited for field work.....	\$25 00
Amount deposited for office work.....	\$25 00
Area in acres.....	320

C.—Statement showing the surveys of mineral claims under the act of July 26, 1866, together with the amount of money deposited for surveying the same.

Name of lode.	Number of survey.	Number of mineral district.	Mining district.	County.	Township.	Area—acres.	Date of approval.	Character of lode.	Amount deposited for field work.	Amount deposited for office work.
Shaw .....	46	1	Illinois Central.	Gilpin	3 S., R. 73 W.	1.26	Sept. 15, 1868	Gold	\$60 00	\$37 50
Corydon .....	47	1	Nevada	do	do	1.03	Dec. 7, 1868	do	60 00	37 50
National Bank .....	48	1	Eureka	do	do	1.006	Jan. 20, 1869	do	60 00	37 50
Symond's Fork .....	49	1	Nevada	do	do	1.49	May 15, 1869	Gold and silver	60 00	37 50
Vanderbilt .....	50	1	do	do	do	.917	June 8, 1869	do	50 00	37 50
Gus. Belmont .....	37	2	Argentine	Clear Creek	Unsurveyed	.....	Aug. 26, 1868	Silver	85 00	37 50
J. L. Edmundson .....	33	2	Virginia	do	do	1.36	Sept. 15, 1868	Gold	50 00	37 50
Alice Jones .....	33	2	Griffith	do	do	1.75	Dec. 7, 1868	Silver	50 00	37 50
S. F. Nuckolls .....	40	2	Idaho	do	do	1.836	Jan. 9, 1869	do	65 00	37 50
Hudson .....	41	2	Griffith	do	do	1.60	Jan. 30, 1869	do	60 00	37 50
Herkimer .....	42	2	do	do	do	1.85	April 15, 1869	do	50 00	37 50
Burrell .....	43	2	do	do	do	.90	April 15, 1869	do	50 00	37 50
Dunedin .....	44	2	do	do	do	1.83	April 15, 1869	do	50 00	37 50
Sam. Holmes .....	45	2	do	do	do	1.83	April 15, 1869	do	50 00	37 50
New Boston .....	46	2	do	do	do	.90	April 15, 1869	do	40 00	37 50
Terrible .....	47	2	do	do	do	1.60	April 15, 1869	do	50 00	37 50
Snow Drift .....	48	2	do	do	do	.80	April 15, 1869	do	60 00	37 50
Cascade .....	49	2	do	do	do	.....	June 10, 1869	do	70 00	37 50
Orphan Boy .....	37	3	Mosquito	Park	do	1.84	June 16, 1869	Gold, silver, & copper	60 00	37 50
De Mary .....	38	3	do	do	do	145.34	June 16, 1869	do	90 00	37 50
Honey Comb .....	39	3	do	do	do	153.82	June 16, 1869	Gold and silver	100 00	37 50
						327.359			1,260 00	767 50



*D.—Statement of account of appropriation for compensation of the United States surveyor general, and the employes in his office, during the fiscal year ending June 30, 1869.*

Amount paid quarter ending September 30, 1868 .....	\$1,950 00
Amount paid quarter ending December 31, 1868 .....	1,950 00
Amount paid quarter ending March 31, 1869 .....	1,950 00
Amount paid quarter ending June 30, 1869 .....	1,950 00
Total .....	<u>7,800 00</u>

*Statement of account of appropriation for rent of office, fuel, books, stationery, and other incidental expenses, including pay of messenger, during the fiscal year ending June 30, 1869.*

Amount paid quarter ending September 30, 1868 .....	\$388 45
Amount paid quarter ending December 31, 1868 .....	520 75
Amount paid quarter ending March 31, 1869 .....	430 10
Amount paid quarter ending June 30, 1869 .....	439 88
Total .....	<u>1,779 18</u>

*E.—Statement showing description of lands and area of same, surveyed during the year ending June 30, 1869, west of sixth principal meridian.*

Township and range.	Area.	Township and range.	Area.
Township 1 south, range 61 west.....	23, 107. 65	Township 4 north, range 64 west.....	22, 867. 75
Township 9 south, range 61 west.....	23, 194. 48	Township 4 south, range 65 west.....	23, 004. 11
Township 10 south, range 61 west.....	23, 137. 24	Township 13 south, range 65 west.....	23, 073. 29
Township 1 north, range 61 west.....	23, 964. 53	Township 11 north, range 65 west.....	22, 930. 49
Township 1 south, range 62 west.....	23, 347. 72	Township 12 north, range 65 west.....	22, 993. 46
Township 5 south, range 62 west.....	22, 981. 82	Township 11 north, range 66 west.....	23, 069. 73
Township 10 south, range 62 west.....	23, 037. 51	Township 12 north, range 66 west.....	23, 113. 51
Township 11 south, range 62 west.....	23, 365. 17	Township 11 north, range 67 west.....	22, 867. 47
Township 1 north, range 62 west.....	23, 054. 53	Township 12 north, range 67 west.....	22, 939. 35
Township 2 north, range 62 west.....	23, 124. 75	Township 11 north, range 68 west.....	22, 948. 87
Township 3 north, range 62 west.....	23, 102. 47	Township 12 north, range 68 west.....	23, 245. 49
Township 4 north, range 62 west.....	23, 077. 24	Township 11 north, range 69 west.....	23, 056. 99
Township 1 south, range 63 west.....	23, 477. 19	Township 12 north, range 69 west.....	23, 215. 43
Township 2 south, range 63 west.....	23, 030. 65	Township 9 south, range 75 west.....	23, 000. 16
Township 11 south, range 63 west.....	23, 287. 30	Township 10 south, range 75 west.....	23, 007. 69
Township 1 north, range 63 west.....	23, 120. 75	Township 9 south, range 76 west.....	22, 991. 10
Township 2 north, range 63 west.....	23, 131. 87	Township 10 south, range 76 west.....	23, 048. 17
Township 3 north, range 63 west.....	23, 079. 55	Township 9 south, range 77 west.....	23, 066. 06
Township 4 north, range 63 west.....	23, 055. 21	Township 10 south, range 77 west.....	23, 019. 04
Township 1 south, range 64 west.....	23, 180. 82	Township 1 north, range 78 west.....	23, 036. 72
Township 2 south, range 64 west.....	23, 087. 80	Township 45 north, range 6 east, of New Mexico meridian .....	10, 563. 53
Township 3 south, range 64 west.....	23, 133. 46	Township 33 north, range 9 east, of New Mexico meridian .....	23, 111. 82
Township 11 south, range 64 west.....	22, 994. 24		
Township 12 south, range 64 west.....	23, 107. 61		
Township 1 north, range 64 west.....	22, 992. 54		
Township 2 north, range 64 west.....	22, 910. 76		
Township 3 north, range 64 west.....	22, 906. 20	Total.....	<u>1, 119, 166. 85</u>

*No. 18 I.—Annual report of the surveyor general of Utah.*

SALT LAKE CITY, UTAH, August 17, 1869.

SIR: I have the honor to submit the following report in reference to the condition of the surveys in this district during the fiscal year ending June 30, 1869, together with statements relating thereto, marked from A to F, inclusive.

Under the existing appropriation, my predecessor procured the survey of nineteen miles of base and meridian, and thirty-three and one-half miles of subdivisional lines, at a cost of six hundred and twenty dollars and thirty-three cents.

Contracts were also made to the amount of thirteen thousand five hundred dollars, for the extension of the surveys into the Bear River, Bear Lake, Provo, Ogden, and Weber valleys.

In addition to these surveys, it is proposed to contract for the extension of the base

line west, the survey of a guide meridian to intersect the southern boundary of the Territory, establish standard parallels, survey the township lines where the lands are available for agriculture, and make such subdivisions as will include the settlements on the Sevier, Pinto, and Virgin Rivers.

This will consume the unexpended appropriation for this district.

#### MINING.

But little attention has been given to the development of the mineral resources of the Territory. This may be mainly attributed to the great expense to be incurred in the transportation of machinery and the high prices of labor.

Sufficient prospecting has been done to warrant the belief that deposits of gold, silver, and copper exist, in paying quantities in Cottonwood Cañon, in the Wasatch Mountains; Bingham Cañon, in the Oquirrh range; Rush Valley and Minersville districts; and on Pine Creek, a tributary of the Sevier River. Fine specimens of argentiferous ore have been brought from mines in the extreme southwestern section of the Territory.

#### COAL AND IRON.

Extensive deposits of coal have been discovered in the vicinity of Coalville, and in San Pete County. The construction of the Union Pacific railroad grade led to further discoveries of bituminous coal in Echo Cañon last year, the veins varying from two to eighteen feet in thickness.

Hematite ore of a good quality is abundant. In Iron County, on the Pinto, two smelting furnaces are in operation, but with what success I have not ascertained.

#### AGRICULTURE.

It is estimated that one hundred and fifty thousand acres of land are under cultivation. The soil and climate are admirably adapted to this branch of industry. All of the ordinary cereals, vegetables, and fruits, are readily produced, where the facilities are afforded for irrigation, while in southern Utah the raising of cotton will prove a source of profit.

The zeal evinced by the settlers in acquiring titles to their homes is highly commendable, and I would urge the necessity of an appropriation of fifty thousand dollars for the extension of the surveys in this district during the fiscal year ending June 30, 1871, to the end that settlers may avail themselves of the benefits of the pre-emption and homestead laws.

In conclusion, I will state that Utah contains an estimated population of one hundred thousand, and possessing a variety of resources other than those enumerated, will doubtless achieve a condition of great prosperity in the future.

I am, very respectfully, your obedient servant,

COURTLAND C. CLEMENTS,  
*United States Surveyor General of Utah.*

Hon. JOSEPH S. WILSON,  
*Commissioner of the General Land Office.*

A.—Statement of surveys made under the appropriation for the fiscal year ending June 30, 1869.

No. of contract.	Name of deputy.	Extent.	Cost.	Remarks.
1	Julien Bausman .....	<i>Miles. chs. lks.</i>		
		0 20 0	\$3 75	Base line.
		7 60 0	116 24	Base line. (Resurvey.)
		1 0 0	15 00	Salt Lake meridian.
		9 79 70	149 96	Salt Lake meridian. (Resurvey.)
		20 73 44	209 18	Subdivisional.
		12 49 78	126 20	Subdivisional. (Resurvey.)
	Total .....	52 42 92	620 33	

B.—Statement showing the surveys contracted for under the appropriation for the fiscal year ending June 30, 1869.

Number of contract.	Names of deputies.	Character of work.	Estimated number of miles.	Estimated cost.	Remarks.
2	Joseph Gorlinski. ....	Standard, township, and section lines.	600	\$6,500	In progress.
3	Julien Bausman. ....	Standard, township, and section lines.	550	7,000	Do
	Total. ....	.....	1,100	13,500	

C.—Statement showing the amount of salaries paid surveyor general and clerks for the fiscal year ending June 30, 1869, also incidental expenses for same period.

Name.	Duty.	Rate of salary.	Time employed.	Amount.
John A. Clark. ....	Surveyor general.	\$3,000	10 months, 6 days.	\$2,543 48
William Hempstead. ....	Chief clerk.	1,800	7 months, 29 days.	1,193 47
Julien Bausman. ....	Draughtsman.	1,500	3 months, 29 days.	486 13
Joseph Gorlinski. ....	Draughtsman.	1,500	1 month, 15 days.	185 44
Ferdinand Dickert. ....	Clerk.	1,400	3 months, 6 days.	377 22
Total. ....	.....			4,785 74

*Incidental expenses, 1868-'69.*

Expended for second quarter. ....	\$961 61
Expended for third quarter. ....	313 55
Expended for fourth quarter. ....	291 59
Total incidental expenses. ....	1,566 75

D.—Statement showing the number of townships surveyed during the year ending June 30, 1869, and the area of public land contained in the same.

Description.	Area.	Remarks.
Township 1 south, range 1 east. ....	1,787.46	Additional survey.
Township 1 north, range 1 east. ....	3,123.12	
Township 1 south, range 1 west. ....	961.02	Additional survey.
Township 1 north, range 1 west. ....	2,087.99	Additional survey.
Total. ....	7,959.59	



E.—Statement showing the townships surveyed in Utah from the time surveys were first instituted, and areas of public lands and reservations in each township.

Township and range.	Area of public lands.	Area of reservations.	Aggregate area.
Township 1 north, range 1 west .....	18,181.91	.....	18,181.91
Township 1 north, range 2 west .....	22,907.72	.....	22,907.72
Township 1 north, range 3 west .....	2,610.90	.....	2,610.90
Township 2 north, range 1 west .....	12,487.50	.....	12,487.50
Township 2 north, range 1 east .....	5,239.12	.....	5,239.12
Township 2 north, range 2 west .....	2,382.20	.....	2,382.20
Township 3 north, range 1 east .....	1,200.00	.....	1,200.00
Township 3 north, range 1 and 2 west .....	10,727.80	.....	10,727.80
Township 4 north, range 1 west .....	19,941.67	.....	19,941.67
Township 4 north, range 2 and 3 west .....	18,892.08	.....	18,892.08
Township 5 north, range 1 west .....	17,032.28	.....	17,032.28
Township 5 north, range 2 west .....	23,031.91	.....	23,031.91
Township 5 north, range 3 west .....	8,148.05	.....	8,148.05
Township 6 north, range 1 west .....	12,999.45	.....	12,999.45
Township 6 north, range 2 west .....	23,010.71	.....	23,010.71
Township 6 north, range 3 west .....	17,765.36	.....	17,765.36
Township 6 north, range 4 west .....	1,139.70	.....	1,139.70
Township 7 north, range 1 west .....	8,241.71	.....	8,241.71
Township 7 north, range 2 west .....	19,732.14	.....	19,732.14
Township 7 north, range 3 west .....	5,806.40	.....	5,806.40
Township 8 north, range 2 west .....	6,081.90	.....	6,081.90
Township 8 north, range 3 west .....	2,798.39	.....	2,798.39
Township 9 north, range 1 west .....	960.00	.....	960.00
Township 9 north, range 2 west .....	20,626.64	.....	20,626.64
Township 9 north, range 3 west .....	21,551.10	.....	21,551.10
Township 9 north, range 4 west .....	4,681.07	.....	4,681.07
Township 9 north, range 7 west .....	18,202.77	.....	18,202.77
Township 10 north, range 1 east .....	8,122.30	.....	8,122.30
Township 10 north, range 1 west .....	6,040.00	.....	6,040.00
Township 10 north, range 2 west .....	14,444.08	.....	14,444.08
Township 10 north, range 3 west .....	22,870.98	.....	22,870.98
Township 10 north, range 4 west .....	15,197.79	.....	15,197.79
Township 10 north, range 5 west .....	9,920.00	.....	9,920.00
Township 10 north, range 6 west .....	6,200.00	.....	6,200.00
Township 10 north, range 7 west .....	20,721.90	.....	20,721.90
Township 11 north, range 1 east .....	15,125.98	.....	15,125.98
Township 11 north, range 1 west .....	16,961.32	.....	16,961.32
Township 11 north, range 2 west .....	9,275.99	.....	9,275.99
Township 11 north, range 3 west .....	22,932.37	.....	22,932.37
Township 11 north, range 4 west .....	18,559.40	.....	18,559.40
Township 11 north, range 5 west .....	12,648.04	.....	12,648.04
Township 11 north, range 6 west .....	13,080.32	.....	13,080.32
Township 11 north, range 7 west .....	20,554.81	.....	20,554.81
Township 12 north, range 1 east .....	16,084.67	.....	16,084.67
Township 12 north, range 1 west .....	21,361.91	.....	21,361.91
Township 12 north, range 2 west .....	7,834.90	.....	7,834.90
Township 12 north, range 3 west .....	17,875.59	.....	17,875.59
Township 12 north, range 4 west .....	7,560.00	.....	7,560.00
Township 12 north, range 5 west .....	16,644.86	.....	16,644.86
Township 12 north, range 6 west .....	10,560.68	.....	10,560.68
Township 12 north, range 7 west .....	22,500.16	.....	22,500.16
Township 13 north, range 1 east .....	14,521.40	.....	14,521.40
Township 13 north, range 2 west .....	4,721.74	.....	4,721.74
Township 13 north, range 3 west .....	18,196.20	.....	18,196.20
Township 13 north, range 5 west .....	13,321.54	.....	13,321.54
Township 13 north, range 6 west .....	13,719.15	.....	13,719.15
Township 13 north, range 7 west .....	15,201.80	.....	15,201.80
Township 14 north, range 1 east .....	18,205.18	.....	18,205.18
Township 14 north, range 1 west .....	9,399.30	.....	9,399.30
Township 14 north, range 3 west .....	15,161.34	.....	15,161.34
Township 14 north, range 4 west .....	2,280.09	.....	2,280.09
Township 14 north, range 5 west .....	11,635.24	.....	11,635.24
Township 14 north, range 6 west .....	10,797.66	.....	10,797.66
Township 14 north, range 7 west .....	2,800.00	.....	2,800.00
Township 1 south, range 1 east .....	12,886.72	2,192.00	15,078.72
Township 1 south, range 1 west .....	21,132.34	.....	21,132.34
Township 1 south, range 2 west .....	22,071.85	.....	22,071.85
Township 1 south, range 3 west .....	7,604.27	.....	7,604.27
Township 1 south, range 4 west .....	1,112.02	.....	1,112.02
Township 1 south, range 5 west .....	1,883.32	.....	1,883.32
Township 2 south, range 1 west .....	22,640.25	.....	22,640.25
Township 2 south, range 2 west .....	16,160.84	.....	16,160.84
Township 2 south, range 1 east .....	17,962.84	.....	17,962.84
Township 2 south, range 4 west .....	19,529.61	.....	19,529.61
Township 2 south, range 5 west .....	19,148.68	.....	19,148.68
Township 2 south, range 6 west .....	16,884.56	.....	16,884.56
Township 3 south, range 1 east .....	15,460.78	.....	15,460.78
Township 3 south, range 1 west .....	22,888.11	.....	22,888.11
Township 3 south, range 2 west .....	17,475.94	.....	17,475.94

*E.—Statement showing the townships surveyed in Utah, &c.—Continued.*

Township and range.	Area of public lands.	Area of reservations.	Aggregate area.
Township 3 south, range 3 west.....	1,600.00	.....	1,600.00
Township 3 south, range 4 west.....	20,625.74	.....	20,625.74
Township 3 south, range 5 west.....	22,944.90	.....	22,944.90
Township 3 south, range 6 west.....	16,722.41	.....	16,722.41
Township 4 south, range 1 east.....	10,120.80	.....	10,120.80
Township 4 south, range 1 west.....	13,670.76	.....	13,670.76
Township 4 south, range 2 west.....	2,760.00	.....	2,760.00
Township 4 south, range 2 east.....	2,761.47	.....	2,761.47
Township 4 south, range 4 west.....	3,480.70	.....	3,480.70
Township 4 south, range 5 west.....	12,574.53	2,802.16	15,376.69
Township 4 south, range 6 west.....	11,398.19	.....	11,398.19
Township 5 south, range 1 east.....	17,732.08	.....	17,732.08
Township 5 south, range 2 east.....	11,173.16	.....	11,173.16
Township 5 south, range 2 west.....	16,480.23	.....	16,480.23
Township 5 south, range 3 west.....	240.00	.....	240.00
Township 5 south, range 4 west.....	6,001.04	.....	6,001.04
Township 5 south, range 5 west.....	20,680.96	2,274.85	22,955.81
Township 5 south, range 6 west.....	12,081.07	.....	12,081.07
Township 6 south, range 1 east.....	2,685.61	.....	2,685.61
Township 6 south, range 1 west.....	8,165.57	.....	8,165.57
Township 6 south, range 2 east.....	18,174.38	.....	18,174.38
Township 6 south, range 3 east.....	2,641.62	.....	2,641.62
Township 6 south, range 2 west.....	22,711.84	.....	22,711.84
Township 6 south, range 3 west.....	4,440.21	.....	4,440.21
Township 6 south, range 4 west.....	19,430.80	.....	19,430.80
Township 6 south, range 5 west.....	23,030.67	.....	23,030.67
Township 6 south, range 6 west.....	13,193.52	.....	13,193.52
Township 7 south, range 1 east.....	93.25	.....	93.25
Township 7 south, range 1 west.....	5,315.78	.....	5,315.78
Township 7 south, range 2 west.....	23,033.26	.....	23,033.26
Township 7 south, range 2 east.....	7,598.17	.....	7,598.17
Township 7 south, range 3 east.....	8,428.04	.....	8,428.04
Township 7 south, range 3 west.....	2,520.00	.....	2,520.00
Township 8 south, range 1 east.....	17,868.69	11,252.84	29,121.53
Township 8 south, range 2 east.....			
Township 8 south, range 3 east.....			
Township 8 south, range 1 west.....	17,723.80	.....	17,723.80
Township 8 south, range 2 west.....	10,704.46	.....	10,704.46
Township 8 south, range 2 east.....	17,800.78	.....	17,800.78
Township 8 south, range 3 west.....	2,000.00	.....	2,000.00
Township 9 south, range 1 east.....	14,497.35	.....	14,497.35
Township 9 south, range 2 east.....	17,086.47	.....	17,086.47
Township 9 south, range 1 west.....	20,557.73	.....	20,557.73
Township 9 south, range 2 west.....	5,640.00	.....	5,640.00
Township 9 south, range 3 east.....	2,519.14	.....	2,519.14
Township 10 south, range 1 east.....	11,999.31	.....	11,999.31
Township 10 south, range 2 east.....	560.00	.....	560.00
Township 10 south, range 1 west.....	20,783.53	.....	20,783.53
Township 10 south, range 2 west.....	3,680.00	.....	3,680.00
Township 11 south, range 1 east.....	11,800.16	.....	11,800.16
Township 11 south, range 1 west.....	7,161.72	.....	7,161.72
Township 11 south, range 2 west.....	3,560.00	.....	3,560.00
Township 12 south, range 1 east.....	10,002.36	.....	10,002.36
Township 12 south, range 5 east.....	2,880.00	.....	2,880.00
Township 12 south, range 1 west.....	10,680.76	.....	10,680.76
Township 13 south, range 1 east.....	9,483.83	.....	9,483.83
Township 13 south, range 2 east.....	3,160.00	.....	3,160.00
Township 13 south, range 4 east.....	2,000.00	.....	2,000.00
Township 13 south, range 5 east.....	6,718.18	.....	6,718.18
Township 13 south, range 1 west.....	8,081.26	.....	8,081.26
Township 14 south, range 1 west.....	11,640.69	.....	11,640.69
Township 14 south, range 1 east.....	7,004.10	.....	7,004.10
Township 14 south, range 2 east.....	3,520.62	.....	3,520.62
Township 14 south, range 3 east.....	8,684.79	.....	8,684.79
Township 14 south, range 4 east.....	13,360.75	.....	13,360.75
Township 14 south, range 5 east.....	5,803.87	.....	5,803.87
Township 15 south, range 1 east.....	2,761.50	.....	2,761.50
Township 15 south, range 2 east.....	1,400.00	.....	1,400.00
Township 15 south, range 3 east.....	21,839.29	.....	21,839.29
Township 15 south, range 4 east.....	1,956.17	.....	1,956.17
Township 15 south, range 5 east.....	720.00	.....	720.00
Township 15 south, range 1 west.....	20,483.56	.....	20,483.56
Township 16 south, range 1 west.....	7,920.92	.....	7,920.92
Township 16 south, range 2 east.....	8,720.00	.....	8,720.00
Township 16 south, range 3 east.....	17,670.69	.....	17,670.69
Township 17 south, range 1 west.....	15,400.00	.....	15,400.00
Township 17 south, range 2 east.....	11,282.70	.....	11,282.70
Township 17 south, range 3 east.....	11,727.23	.....	11,727.23
Township 18 south, range 1 west.....	15,527.06	.....	15,527.06
Township 18 south, range 1 east.....	4,245.22	.....	4,245.22
Township 18 south, range 2 east.....	8,964.99	.....	8,964.99

*E.—Statement showing the townships surveyed in Utah, &c.—Continued.*

Township and range.	Area of public lands.	Area of reservations.	Aggregate area.
Township 18 south, range 3 east .....	920.00	.....	920.00
Township 19 south, range 1 west .....	14,560.99	.....	14,560.99
Township 19 south, range 1 east .....	16,082.07	.....	16,082.07
Township 19 south, range 2 east .....	5,800.52	.....	5,800.52
Township 20 south, range 1 east .....	14,049.91	.....	14,049.91
Township 20 south, range 1 west .....	14,873.60	.....	14,873.60
Township 21 south, range 1 west .....	18,443.20	.....	18,443.20
Township 21 south, range 1 east .....	3,061.37	.....	3,061.37
Township 22 south, range 1 west .....	9,365.39	.....	9,365.39
Township 22 south, range 2 west .....	7,480.00	.....	7,480.00
Township 23 south, range 2 west .....	12,403.45	.....	12,403.45
Township 23 south, range 3 west .....	5,000.00	.....	5,000.00
Township 24 south, range 2 west .....	2,680.57	.....	2,680.57
Township 24 south, range 3 west .....	14,801.42	.....	14,801.42
Township 25 south, range 3 west .....	7,965.76	.....	7,965.76
Township 25 south, range 4 west .....	5,999.80	.....	5,999.80
Township 1 south, range 1 east .....	1,787.46	.....	1,787.46
Township 1 north, range 1 east .....	3,123.12	.....	3,123.12
Township 1 south, range 1 west .....	961.02	.....	961.02
Township 1 north, range 1 west .....	2,087.99	.....	2,087.99
Total, 176 townships .....	2,029,804.43	18,521.85	2,048,326.28

*F.—Estimate of appropriations required for the fiscal year ending June 30, 1871*

Salary of the surveyor general .....	\$3,000 00
Salary of chief clerk .....	1,800 00
Salary of principal draughtsman .....	1,500 00
Salary of additional clerk .....	1,400 00
Salary of messenger .....	400 00
Incidental expenses .....	2,000 00
Public surveys .....	50,000 00
Total .....	60,100 00

*No. 18 J.—Annual report of the surveyor general of Nevada.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
Virginia City, Nevada, August 16, 1869.

SIR: In compliance with your instructions, I have the honor to submit the following report, in duplicate, of the operations of this office during the fiscal year ending June 30, 1869, with accompanying statements relative to the surveying department.

A.—Statement of contracts entered into by the United States surveyor general for Nevada, with the number of miles surveyed during the fiscal year 1868 and 1869.

B.—List of mineral claims surveyed in the State of Nevada during the fiscal year 1868 and 1869.

C.—List of lands surveyed in the State of Nevada during the fiscal year 1868 and 1869.

D.—Statement of plats made in the office of the United States surveyor general of Nevada during the fiscal year 1868 and 1869.

E.—Statement of mineral surveys re-copied.

F.—List of special deposits with the sub-treasury of the United States for mineral claims in Nevada during 1867, 1868, and 1869.

G.—Statement of account of appropriation for surveys of public lands in Nevada during the fiscal year 1868 and 1869.

H.—Statement of account for compensation of United States surveyor general and the employés of his office during the fiscal year 1868 and 1869.

I.—Statement of account of appropriation for rent of office, fuel, books, stationery, and other incidental expenses, including pay of messenger, during the year 1868 and 1869.

K.—Statement of the surveying service of the district of Nevada for the fiscal year ending June 30, 1871.

I propose to give, from the best sources of information within the reach of this office, a general idea of the soil, climate, resources, improvements, and products of this State. The statements are based principally upon the reports of the surveyor general and of



the mineralogist of the State, the reports of the commissioner of mining statistics west of the Rocky Mountains, and the notes of surveyors, prospectors, and miners who have traversed quite every county in the State.

The present area of this State, embracing the additions from the Territories of Utah and Arizona, is 112,089 square miles, or 71,737,600 acres. The water surface is estimated at 1,080,960 acres. Fully one-half of the area of the State is covered with mountain ranges. I have yet obtained no data from which to estimate the proportion of mineral, agricultural, grazing, swamp and overflowed, and desert lands within the area of the State.

Although the numerous lofty parallel ranges of mountains impart picturesque grandeur to the landscape, the general appearance of the valleys and plains is that of extreme aridity. But experience shows that this land may be generally made productive by irrigation, and farms and gardens—refreshing oases in the general waste—pleasantly dot parts of the State. The soil is principally a dark, friable loam, easily tilled.

There are places on the plains which were universally regarded as utterly barren, which are now yielding profitable harvests. Some of the finest land is found in broad cañons and in indentations of the valleys, and is capable of a high state of cultivation. But to insure certain and good crops irrigation is generally essential. Ample experience shows that a considerable part of the land in the State is adapted to the growth of the various grains and the ordinary roots; and tests have been made in a greater or lesser degree in nearly every section of the State. The surveyor of Humboldt County, in his report for 1867-'68 to the surveyor general of this State, returns 2,500 acres of barley, averaging forty bushels per acre, and 1,200 acres of wheat, with the same average yield per acre.

Orchards have been planted in several counties, in which the apple, pear, peach, and plum, are reported to grow thrifflily. Of forest trees, the cottonwood, locust, and balm of Gilead, have been planted with good success.

Although the climate is variable, it is very generally considered to be healthy. The seasons are divided into wet and dry, but the changes are not distinctly marked. Snow falls upon the mountains and rain in the valleys. In the northwestern, middle, and northeastern parts of the State the wet or winter season begins fairly with the year, and continues, with intermissions of delightful weather, until May. During the severest weather the mercury varies from zero to fifteen and even twenty degrees below, in the valleys. In the dry or summer season the average temperature at midday is about ninety degrees, which falls, gradually, during the night to about seventy degrees. The temperature of the southeastern part of the State is higher in the winter season, and there is scarcely any frost and but little snow, but the summer is longer and the heat more oppressive. Throughout the State the fall is beautiful.

The permanent resources of this State consist of its mineral and grazing lands. The noble metals occur in every county in the State, and in many of them lead, copper, and iron, are found. The principal mining counties are Storey—in which the great "Comstock" is situated—Humboldt, Esmeralda, Lander, White Pine, (segregated from Lander,) Nye, and Lincoln.

The Comstock has already added the splendid sum of \$100,000,000 to the coin of the world; and, amid the uncertainties and fluctuations of mining, it continues to yield at the rate of \$10,000,000 annually.

The yield for 1868 was \$9,468,233. It is estimated that the yield for the current year will be fully as large, in spite of the fire which occurred in the Yellow Jacket, Kentuck, and Crown Point, which led to the temporary closing of those mines. Other mines, such as the Occidental, which produced only \$80,000 last year, and the Lady Bryan, which produced nothing, are now yielding bullion generously. The dividends disbursed last year by the mines of the Comstock amounted to \$3,280,560. The mines of other parts of the State, especially in Humboldt, Lander, Nye, and White Pine counties, are apparently in a more favorable condition than they have been for several years. The completion of the Central Pacific railroad has given a new impetus to this important industry in several mining sections, particularly in Humboldt and White Pine. The great railway will lessen the cost of machinery and supplies; will add to the labor of the State through cheap fares and short time from the older States; and will transport to efficient and economical reduction works refractory ores, and ores of low grade, which are now practically of no value. The great cost of mill and mine machinery, and supplies of every kind, together with the high rates of wages, and the want of a good system of mining, have been the main causes of disaster to this interest in the central and eastern parts of the State. I will mention an instructive incident of silver mining in the central part of the State: The district of Reese River is celebrated for the high grade of its ores. This is accounted for chiefly by their close assorting. Ores worth \$70 to \$80 per ton are withheld from the mill and thrown upon the "dump," where they help to form a worthless debris. During the year 1868 the Manhattan mill, of twenty stamps, produced in the above district silver bullion worth, in round numbers, \$1,200,000, an amount equal to the annual product of all Freiberg, a district justly eminent for its metallurgical skill. Mining in this valuable district has been unsuccessful by reason of

the exorbitant rates of wages and materials. But the railroad will work a radical and beneficent reform in this chief industry of the State.

The report of the State mineralogist for 1867-'68 states the number of quartz mills to be one hundred and fifty-eight, with an aggregate of two thousand three hundred and sixty-three stamps. Besides these mills there are smelting works in different sections of the State.

As deservedly great and valuable as is the mining industry of Nevada, it no longer absorbs the public attention. The grazing capacity of the State is coming to be understood and appreciated. It is destined to be the second great resource of our country. Men of experience and judgment, long residents of this coast, express the belief that before many years Nevada will raise meat for California. It is the uniform testimony of all who have traversed the State that the mountains and foot-hills produce luxuriantly several varieties of bunch-grass. It is noticeable that even in the arid valleys each sage bush shelters two or three bunches of grass. In some parts of the apparently barren plains there are large tracts of what is commonly known as "sand-grass," which is admitted to be one of the finest of the bunch grasses. This grass grows in bunches about one foot in height, and is loaded with a black seed much resembling buckwheat. Stock are fond of this grass, and when they feed upon it, either green or dry, will keep in prime condition, and render good service. All the varieties of the bunch grass are hardy, and grow generously from barren-looking soils. Besides these grasses there grows in the valleys a grayish-white shrub, called "white sage," which is valuable winter feed for stock. While it is growing it has a resinous and bitter taste, and is not eaten; but after it has been touched by the frost it becomes tender, sweet, and nutritious. It has been aptly called "winter-fat" by stock growers and herders. This "white sage," and those various bunch grasses, are remarkably nutritious, and the cattle which feed upon them look uncommonly well after a prolonged season's constant use. Stock, whether cattle, horses, or sheep, which have been wintered without shelter in this State, bear palpable evidence in the spring of the fatness of its pasturage, and the salubrity of the semi-rigorous season.

The last few years have produced a great change in the prospects of this young State. Hitherto the majority of the people congregated in the mining towns, and the entire industry of the State was absorbed by the mining interest. Farming lands were considered valuable only when they were contiguous to some prosperous mining camp. Indeed, the very existence of agricultural land in the State was generally doubted; and the first potato raised near some newly discovered mining camp was regarded with undisguised curiosity. At the best, only those lands which bordered closely upon mountain cañons, or formed the lowest flats on the larger streams, were deemed capable of cultivation. Large tracts of sage-brush land were considered as absolutely worthless, and the forbidding appearance of this dismal shrub added to the terrors with which agricultural pursuits were surrounded. Men born and brought up on farms deserted their natural avocation, and devoted themselves to the more attractive business of seeking for silver. It was rare to hear Nevada spoken of as anybody's home. But experience has taught them better. They have learned that much of the land which they despised as irreclaimable, needs only enterprise, industry, and care, to become productive. All that is required to render it fertile is proper irrigation. The sage brush is easily cleared off the land, and when it is removed it does not spring up again to torment the farmer and obstruct his grain. Farmers learn, to their surprise, that the land which is covered with the heaviest growth of sage brush may be made to produce the finest crops of grain. Vegetables, which were a few years ago supplied almost wholly by California, are now raised in great abundance and of excellent quality. Fruits, too, the raising of which was thought beyond the wildest hope, are now growing successfully in several parts of the State. Farmers have learned in Nevada what they learn elsewhere, without knowing that they are learning—that is, the character of the land and the peculiarities of their soil and climate. Now that the business of farming is coming to be understood, and the Pacific railroad has opened our State to the industrious emigrants of the eastern States and Europe, a demand is arising for farming lands and grazing ranches.

As may be inferred from the foregoing remarks, the great need of the lands of Nevada is water for irrigation. It is believed that the best mode of supplying this want is the artesian well. In order to understand their fitness it must be borne in mind that the mountains of Nevada consist for the most part of meridional ranges, extending from the Humboldt to the Colorado on the south, and from the Humboldt to the Owyhee on the north; that these ranges are generally supplied with springs and mountain streams, whose waters rarely extend into the valleys below the foot-hills; that even where no water appears in springs or in the cañons, mining operations have shown that tunnels and shafts driven a short distance into the mountains will generally tap considerable bodies of it; that the valleys lying between these meridional ranges have invariably the course, direction, and inclination which are usually found in great water courses, and which would carry all the water which might be in them into the river



which runs at the northern or southern terminns. They are generally of great depth and considerable width, and when they narrow into cañons or gorges, water frequently appears and streams flow on the surface until the valleys expand, when the waters seem to sink. There is great reason to look upon these valleys as simply dry rivers carrying water far below the surface, and that the water issuing from the mountain cañons sinks through the sands until it reaches the bed-rock, and following this until it arrives at the lowest part of the valley it forms a subterranean stream, which takes its course toward the great rivers already named. It is believed that artesian wells sunk along the sides of these valleys would tap this body of water and bring it with more or less force to the surface.

Such enterprises could be carried out only by companies or organized combinations of farmers. Under present circumstances, where only possessory titles can be obtained, which are from their very nature uncertain and transitory, there is little encouragement for such undertakings. But when our valleys have been surveyed, and government titles can be easily and certainly secured by the willing and industrious, a great improvement in this direction may be confidently anticipated.

As an illustration of the rapid, wonderful changes which occur in this State, I will relate one which transpired within the past twelve months. A mineral district was discovered in the White Pine range of mountains, and was named after the range, in the fall of 1865. A large number of ledges were located, and one mill of five stamps was erected. But the district attracted little attention until the spring of last year, when the extraordinary deposits of unriparated silver ore led to an excitement only short of that of famous Washoe. It is a singular fact that these deposits were first discovered by an Indian. The mines are situated in Treasure Hill, a lofty peak of the mountain range, ten thousand feet above the ocean level, and the ore occurs in coralline limestone, as corals and the sea-plant alga are found imbedded in the silver-bearing strata. Pieces of this chloride ore, varying from five to one hundred pounds, yielded almost pure silver at the rate of five dollars per pound. So great an excitement followed the discovery of these mines, that from the beginning of October of last year to the close of March of this year it was estimated that fifteen thousand persons had congregated in the district. To meet the wants of this population, a new county was organized, and a judicial district created by the legislature. There are three towns in the district, possessing together stores and dwellings for the accommodation of eight or ten thousand persons. In each of these towns a daily newspaper has been published for months. At this date there are nine mills, with an aggregate of one hundred and seventy stamps, in operation in the district. The grade of the ore has gradually declined from an average of \$300 per ton to about \$100 per ton. The amount of bullion produced in the district up to the close of last July is reported at \$1,500,000.

The fame of White Pine grew rapidly under the increased facilities of the railroad. Prospectors spread over the country adjacent and remote, and within a brief period no less than fifteen mineral districts were discovered and organized. These districts extend two hundred and fifty miles south of the Central Pacific railroad, into Utah Territory on the east, and the line of Idaho on the north. In all these various mining districts nearly every acre of timber, grass, agricultural and saline lands, situated in the mountain ranges or the subjacent valleys, is claimed and held by possessory titles. What proportion of the mining property situated in the numerous districts in the State will prove valuable, remains to be demonstrated.

The finest timber east of the Sierra Nevada grows in the White Pine range of mountains, and is white pine and white fir; but these trees dwarf in comparison with the stately giants of the Sierra. Timber occurs nearly altogether in the mountains. The valleys are treeless. As no important discoveries of coal have yet been made within the State, it is to be hoped that our farmers will perceive the necessity of adopting some plan for raising their own fuel. The Central Pacific railroad, which was completed in May last, will be of incalculable importance in promoting the best interest of the State. In its course of upward of four hundred and fifty miles through or bordering upon extensive mineral regions and agricultural tracts, it has imparted energy and life where before was languor and solitude. Already its line is dotted with towns and settlements. It is generally believed that this grand avenue will be the means of rendering the business of mining profitable in the central and eastern parts of the State.

The projected road near the western border of the State, known as the Virginia and Truckee railroad, has been graded nearly to Carson, a distance of twenty-three miles, and the track will be laid as speedily as possible. This section of the road will be used almost exclusively for the mines of the Comstock and those in its vicinity, and will have the effect of greatly economizing the cost of mining and reducing the ores. It will, besides, utilize an immense amount of ore of a grade ranging from \$12 to \$15 per ton that is now worthless. The capacity of the water-power of Carson River is stated at one thousand tons daily. The entire cost of mining, transportation, and milling this ore is estimated at \$11 to \$12 per ton.



In conclusion, I submit this report for your approval, with the expression of regret at the want of more particular and precise information respecting the character and resources of this State.

Very respectfully, your obedient servant,

E. S. DAVIS,

*United States Surveyor General for Nevada.*

Hon. JOSEPH S. WILSON,

*Commissioner of the General Land Office.*

A.—Statement of contracts entered into by the United States surveyor general for Nevada, with the number of miles surveyed during the fiscal year 1863-69.

Contract. No.	Date.	Name of deputy.	Work embraced in contract and returned to this office.	Amount of contract.	Miles surveyed.			Amount returned.	Date transmittal.	Remarks.
					Standard.	Township.	Section.			
	1867.				<i>M. c. l.</i>	<i>M. c. l.</i>	<i>M. c. l.</i>			
10	Nov. 23	E. B. Monroe.....	Exteriors of townships 16 and 17 north, range 22 east; townships 16 and 17 north, range 23 east; townships 16, 17, 18, 19, and 20 north, range 25 east; townships 16, 17, 18, 19, and 20 north, range 26 east; townships 16, 17, 18, 19, and 20 north, range 27 east; township 17 north, range 28 east. Fifth standard parallel north, embracing ranges 31, 32, 33, 34, and 35 east; exteriors of townships 31, and 27 north, ranges 31 and 32 east; subdivisions of township 26 north, range 31 east; townships 37 north, ranges 31 and 32 east.	\$5,832	.....	435 01 73	.....	\$5,830 25	1869. April 6 and June 1. 1868. July 13.	Amount closed; part in report of 1867 and 1868.
12	Dec. 21	A. J. Hatch.....	31st standard parallel north, embracing ranges 31, 32, 33, 34, and 35 east; exteriors of townships 31, and 27 north, ranges 31 and 32 east; subdivisions of township 26 north, range 31 east; townships 37 north, ranges 31 and 32 east.	6,026	30 00 00	46 71 55	526 16 89	6,274 84	1869. Apr. 17 1868. Aug. 5.	Amount closed; part in report of 1867.
13	1868. Mar. 27	C. C. Tracy.....	Ruby Valley guide meridian, from the fourth standard parallel to the Idaho line; fourth standard parallel line north, from range 49 east to Utah line; fifth, sixth, seventh, eighth, and ninth, adjacent to Ruby Valley guide meridian.	7,200	266 13 43	118 77 64	125 75 55	6,679 59	1868. Sept. 12 and Dec. 7.	Amount closed.
14	May 18	A. J. Hatch.....	Subdivision of townships 35 and 36 north, ranges 37, 38, and 39 east; townships 37 and 38 north, ranges 38 and 39 east; and township 39 north, range 39 east.	4,000	.....	.....	401 47 91	4,015 96	1868. Aug. 21 1869. Jan. 21.	Amount closed.
15	May 26	O. A. Palmer.....	Humboldt River guide meridian, between ranges 35 and 36 east, from township 39 north to the Idaho line; eighth and ninth standard parallels north, adjacent to the Humboldt River guide meridian.	1,620	96 00 00	.....	.....	1,440 00	1868. Oct. 21	Amount closed.
16	1868. July 31	E. B. Monroe.....	Township lines of township 16 north, range 31 east; subdivision lines of township 16 north, ranges 31 and 32 east; township 17 north, ranges 31 and 32 east; township 18 north, range 30 east; township 19 north, ranges 27, 28, 29, 30, and 31 east; township 20 north, range 30 east; township 21 north, range 30 east.	4,560	.....	3 79 40	464 56 56	4,694 96	Oct. 16 1869. Jan. 15.	Amount closed.
17	Aug. 7	O. A. Palmer.....	Exterior lines of townships 41, 42, and 43 north, ranges 35, 36, and 37 east; townships 44 and 45 north, ranges 36 and 37 east; subdivisions of townships 41, 42, and 43 north, range 35 east; townships 41, 42, 43, and 44 north, ranges 36 and 37 east.	6,028	.....	120 06 00	454 12 41	5,992 43	1868. Nov. 19. 1869. Jan. 15.	Amount closed.

19	Oct. 12	E. B. Monroe.....	West boundary of exterior of townships 21, 22, and 23 north, range 27 east; subdivisions of townships 18, 20, and 21 north, range 29 east; townships 18 north, range 28 east; townships 18 and 19 north, range 26 east; townships 16, 17, and 18 north, range 25 east; townships 16 and 17 north, ranges 22, 23, and 24 east.	5, 216	.....	18 00 00	378 17 96	3, 995 24	Jan. 15 and Mar. 20.	Amount closed.
18	Sept. 19	A. J. Hatch.....	Seventh standard line north, from ranges 39 and 40 east to ranges 45 and 46 east; exterior township lines of townships 35 to 36 north, ranges 40, 41, and 42 east; townships 37 and 38 north, ranges 43, 44, and 45 east; townships 37 north, ranges 38 and 39 east.	6, 000	36 00 00	125 65 13	389 03 52	5, 952 20	Jan. 29 and Mar. 8.	Amount closed.
20	Oct. 2	A. Lash, Jr.....	Subdivision of townships 10 and 11 north, range 24 east; townships 11, 12, 13, 14, and 15 north, range 25 east.	3, 100	.....	.....	334 77 30	3, 349 66	Mar. 20	Amount closed.
21	Oct. 22	C. C. Tracy.....	Exterior township lines of townships 32 and 33 north, range 56 east; townships 32, 33, 34, and 35 north, range 57 east; townships 33, 34, and 35 north, range 58 east; townships 34 and 35 north, range 59 east; subdivision lines of townships 32 and 33 north, range 56 east; townships 32, 33, 34, and 35 north, range 57 east; townships 33, 34, and 35 north, range 58 east; townships 34 and 35 north, range 59 east; townships 32, 33, 34, and 35 north, range 56 east; township 36 north, ranges 52, 53, and 54 east; township 36 north, ranges 57, 58, 59, and 60 east; township 37 north, ranges 59, 60, and 61 east; township 38 north, ranges 60, 61, and 62 east.	8, 000	.....	133 00 60	64 08 12	2, 237 09	1869. Feb. 17	Field notes in full not yet returned.
22	Dec. 18	O. A. Palmer.....	Exterior of township lines 45 and 46 north, range 38 east; township 46 north, range 37 east; subdivision of townships 45 and 46 north, ranges 37 and 38 east.	2, 496	.....	30 78 34	192 77 70	2, 301 49	Mar. 31	Amount closed.
23	1869. Jan. 30	A. J. Hatch and I. H. Eaton.	Exterior township lines of township 32 north, ranges 45 and 46 east; township 33 north, range 44 east; township 34 north, ranges 40, 42, 43, and 44 east; township 35 north, range 44 east; township 36 north, range 44 east; township 37 north, range 44 east; subdivision of townships 36 and 37 north, range 44 east; township 32 north, ranges 45 and 46 east; township 33 north, ranges 44 and 45 east; township 34 north, ranges 40, 42, 43, and 44 east; township 35 north, ranges 43 and 44 east.	9, 000	.....	157 61 63	732 05 32	9, 113 78	Apr. 10, Apr. 30, and May 12.	Amount closed.
24	Mar. 5	R. A. Chase.....	Subdivision of townships 6, 7, 9, and 10 north, range 27 east; townships 11 and 13 north, range 26 east.	2, 000	.....	.....	195 14 04	1, 971 76	May 19	Amount closed.



## A.—Statement of contracts entered into by the United States surveyor general for Nevada, &amp;c.—Continued.

Contract. No.	Date.	Name of deputy.	Work embraced in contract and returned to this office.	Amount of contract.	Miles surveyed.			Amount returned.	Date transmitted.	Remarks.
					Standard.	Township.	Section.			
25	1869 Apr. 24	E. B. Monroe.....	Ruby Valley guide meridian, from fourth standard, between ranges 55 and 56 east; sixty miles; third standard, thirty miles; second standard, thirty miles; exterior lines of third and fourth standards, between ranges 56 and 60, townships 16, 17, 18, 19, and 20 north, ranges 56, 57, 58, 59, and 60 east.	\$5,000	M.	M. c. l.	M. c. l.			Field notes not yet returned.
26	May 13	R. A. Chase.....	Subdivision lines of townships 12, 13, 14, and 15 north, range 27 east; townships 12, 14, and 15 north, range 26 east; also exterior and subdivision lines of township 12 north, range 27 east.	2,500						Field notes not yet returned.
Total.....				78,578	428 13 43	1191 41 67	4249 13 31	\$63,242 25		

B.—List of mineral claims surveyed in the State of Nevada during the fiscal year 1868 and 1869.

No. of survey.	Name of company.	Location of claim.				Area in acres.	Date of approval.	Date of transmission.	Character of lode.
		No. of min'l dist.	Mining district.	County.	Township.				
38	Silver Bend.....	3	Philadelphia.....	Nye.....	Unsurveyed.....	9.18	July 16, 1868	July 17, 1868	Silver and gold.
49	Victorine.....	4	Bunker Hill and Summit.....	Lander.....	do.....	5.51	Aug. 19, 1868	Aug. 20, 1868	Do.
50	Joshua R. Bigelow.....	4	Reese River.....	do.....	do.....	8.54	Sept. 12, 1868	Sept. 12, 1868	Do.
50	Joshua R. Bigelow.....	4	do.....	do.....	do.....	0.65	Sept. 12, 1868	Sept. 12, 1868	Do.
52	Prunty & Pullen.....	4	do.....	do.....	do.....	1.88	Sept. 23, 1868	Oct. 22, 1868	Do.
53	John A. Paxton.....	4	do.....	do.....	do.....	2.90	Nov. 27, 1868	Nov. 27, 1868	Do.
54	Reese River Consolidated.....	4	do.....	do.....	do.....	7.90	Dec. 17, 1868	Dec. 26, 1868	Do.
55	Reese River Consolidated.....	4	do.....	do.....	do.....	6.00	Dec. 17, 1868	Dec. 26, 1868	Do.
56	Reese River Consolidated.....	4	do.....	do.....	do.....	5.10	Dec. 17, 1868	Dec. 26, 1868	Do.
57	Reese River Consolidated.....	4	do.....	do.....	do.....	7.10	Dec. 17, 1868	Dec. 26, 1868	Do.
58	Reese River Consolidated.....	4	do.....	do.....	do.....	14.70	Dec. 19, 1868	Dec. 26, 1868	Do.
59	Reese River Consolidated.....	4	do.....	do.....	do.....	5.60	Dec. 19, 1868	Dec. 26, 1868	Do.
60	Reese River Consolidated.....	4	do.....	do.....	do.....	6.50	Dec. 31, 1868	Jan. 6, 1869	Do.
61	Reese River Consolidated.....	4	do.....	do.....	do.....	2.80	Jan. 6, 1869	Jan. 6, 1869	Do.
62	Soshone.....	4	do.....	do.....	do.....	11.20	Jan. 6, 1869	Jan. 6, 1869	Do.
63	William C. Lipp.....	4	do.....	do.....	do.....	4.60	Feb. 8, 1869	Feb. 20, 1869	Do.
64	William C. Lipp.....	4	do.....	do.....	do.....	3.50	Feb. 8, 1869	Feb. 20, 1869	Do.
65	Savannah.....	4	do.....	do.....	do.....	2.00	Mar. 24, 1869	Mar. 25, 1869	Do.
40	Fifty-six.....	5	Central.....	Humboldt.....	do.....	13.78	July 13, 1868	July 13, 1868	Copper.
41	Montana.....	5	do.....	do.....	do.....	1.61	July 17, 1868	July 17, 1868	Silver and gold.
42	Grant.....	5	Sacramento.....	do.....	do.....	4.50	Aug. 5, 1868	Aug. 5, 1868	Do.
43	Numa Duperus.....	5	Indian.....	do.....	do.....	2.76	Oct. 29, 1868	Nov. 5, 1868	Do.
37	Badger.....	5	Trinity.....	do.....	do.....	16.53	Dec. 17, 1868	Dec. 26, 1868	Do.
38	Pacific.....	5	Desert.....	do.....	do.....	19.28	Dec. 17, 1868	Dec. 26, 1868	Do.
37	Imperial.....	5	Truckee.....	do.....	do.....	22.61	Dec. 17, 1868	Dec. 26, 1868	Do.
44	Harrison.....	5	Trinity.....	do.....	do.....	2.76	Jan. 20, 1869	Jan. 21, 1869	Do.
46	Rogers.....	5	Flowerly.....	do.....	do.....	3.39	Jan. 20, 1869	Jan. 21, 1869	Do.
47	Rapids.....	7	do.....	do.....	17 N., R. 21 E.	69.78	June 30, 1868	July 11, 1868	Do.
40	Front Lode Consolidated.....	7	Palmyra.....	do.....	Unsurveyed.....	5.51	June 30, 1868	July 11, 1868	Do.
41	Front Lode Consolidated.....	7	Devil's Gate.....	do.....	16 N., R. 21 E.	18.36	Aug. 8, 1868	Aug. 25, 1868	Do.
42	Columbia.....	7	Gold Hill.....	do.....	do.....	20.00	Aug. 10, 1868	Aug. 31, 1868	Do.
43	Alabama.....	7	Devil's Gate.....	Lyon.....	do.....	11.02	Aug. 15, 1868	Aug. 22, 1868	Do.
48	Virginia Sitonia.....	7	Silver Star.....	Storey.....	do.....	6.67	Aug. 20, 1868	Sept. 14, 1868	Do.
49	do.....	7	Virginia.....	do.....	17 N., R. 21 E.	6.88	Sept. 16, 1868	Sept. 17, 1868	Do.
44	Twin.....	7	Silver Star.....	Lyon.....	16 N., R. 21 E.	23.44	Sept. 30, 1868	Oct. 29, 1868	Do.
45	Table Mountain.....	7	Devil's Gate.....	do.....	do.....	7.40	Nov. 20, 1868	Nov. 28, 1868	Do.
46	Emigrant, jr.....	7	do.....	do.....	do.....	5.21	Nov. 20, 1868	Nov. 28, 1868	Do.
50	Central.....	7	do.....	do.....	17 N., R. 21 E.	5.56	Nov. 20, 1868	Jan. 21, 1869	Do.
37	German.....	7	Virginia.....	Storey.....	Unsurveyed.....	18.13	Nov. 20, 1868	Nov. 20, 1868	Do.
51	Saveage.....	7	Chuehill.....	Lyon.....	do.....	10.00	Nov. 25, 1868	Nov. 30, 1868	Do.
		7	Virginia.....	Storey.....	17 N., R. 21 E.				

## B.—List of mineral claims surveyed in the State of Nevada, &amp;c.—Continued.

No. of survey.	Name of company.	Location of claim.			Area in acres.	Date of approval.	Date of transmission.	Character of lode.
		No. of min. dist.	Mining district.	County.				
52	Eclipse.....	7	Gold Hill.	Storey.....	1.12	Dec. 12, 1868	Jan. 22, 1869	Silver and gold.
53	Trench.....	7	do.	do.	0.74	Dec. 12, 1868	Jan. 13, 1869	Do.
54	Burke & Hamilton.	7	do.	do.	1.48	Dec. 28, 1868	Jan. 13, 1869	Do.
55	Challenge.....	7	do.	do.	1.85	Dec. 28, 1868	Jan. 13, 1869	Do.
56	Empire, (North).....	7	do.	do.	2.01	Feb. 11, 1869	Feb. 22, 1869	Do.
57	Empire, (South).....	7	do.	do.	0.74	Feb. 11, 1869	Feb. 22, 1869	Do.
48	Justice and Independent.....	7	do.	do.	19.23	Feb. 11, 1869	Feb. 22, 1869	Do.
47	Buckeye.....	7	do.	do.	13.77	Feb. 11, 1869	Feb. 22, 1869	Do.
55	Bacon, (North).....	7	Devil's Gate	Lyon.....	1.68	Feb. 11, 1869	Feb. 22, 1869	Do.
59	Bacon, (South).....	7	Gold Hill.	Storey.....	0.74	Feb. 11, 1869	Feb. 22, 1869	Do.
60	Confidence.....	7	do.	do.	1.84	Feb. 18, 1869	Mar. 6, 1869	Do.
61	Chollar Potosi.....	7	Virginian.	do.	34.74	Feb. 19, 1869	Apr. 29, 1869	Do.
	Total.....				481.63			



C.—List of lands surveyed in the State of Nevada during the fiscal year of 1868 and 1869.

Township and range.	Public land.	Unsurveyed.		Total.	Remarks.
		Barren.	Swamp.		
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	
Township 26 N., range 31 E	14,288.53	2,400.00	6,398.80	23,037.33	Embracing Lower Humboldt Valley.
Township 27 N., range 31 E	16,019.56	2,932.00	2,520.00	21,471.56	
Township 27 N., range 32 E	1,781.00	19,952.00		21,733.00	
Township 35 N., range 37 E	22,953.55			22,953.55	
Township 35 N., range 38 E	10,064.94	12,996.32		23,061.26	Embracing Middle Humboldt Valley.
Township 36 N., range 37 E	15,368.42	7,669.12		23,037.54	
Township 36 N., range 38 E	21,245.39		1,809.42	23,054.81	
Township 36 N., range 39 E	14,901.46	8,160.00		23,061.46	
Township 38 N., range 38 E	8,962.28	13,978.72		22,941.00	Embracing Lower Carson Valley.
Township 38 N., range 39 E	20,653.57		2,270.54	22,924.11	
Township 39 N., range 38 E	7,684.48	15,219.36		22,903.84	
Township 39 N., range 39 E	21,865.62		1,078.95	22,944.57	
Township 33 N., range 35 E	19,877.11			19,877.11	Embracing Middle Humboldt Valley.
Township 33 N., range 36 E	22,988.97			22,988.97	
Township 33 N., range 37 E	22,967.61			22,967.61	
Township 34 N., range 35 E	19,019.10	3,944.60		22,963.70	
Township 34 N., range 36 E	22,945.73			22,945.73	Embracing Lower Carson Valley.
Township 34 N., range 37 E	22,909.59			22,909.59	
Township 35 N., range 35 E	14,015.40	8,878.44		22,893.84	
Township 35 N., range 36 E	16,651.46	6,159.53		22,810.99	
Township 16 N., range 31 E	5,446.08	17,000.00		23,046.08	Embracing Middle Humboldt Valley.
Township 16 N., range 32 E	1,442.25	21,597.75		23,040.00	
Township 17 N., range 31 E	11,971.90	11,048.28		23,020.18	
Township 17 N., range 32 E	637.22	22,402.78		23,040.00	
Township 18 N., range 30 E	8,859.36	13,760.00	438.30	23,057.66	Embracing Lower Carson Valley.
Township 19 N., range 27 E	22,916.09			22,916.09	
Township 19 N., range 28 E	22,585.29		307.99	22,893.28	
Township 19 N., range 29 E	22,958.26			22,958.26	
Township 19 N., range 30 E	22,979.05			22,979.05	Embracing Middle Humboldt Valley.
Township 19 N., range 31 E	10,630.33	11,521.44	709.73	22,951.50	
Township 20 N., range 30 E	23,125.14			23,125.14	
Township 21 N., range 30 E	13,891.83		9,141.14	23,032.97	
Township 31 N., range 56 E	23,009.24	80.08		23,089.32	Embracing valley of the South Fork of the Humboldt River.
Township 31 N., range 57 E	12,016.90	11,041.40		23,058.30	
Township 34 N., range 56 E	1,284.50	21,721.84		23,006.34	
Township 35 N., range 56 E	6,468.78	16,545.48		23,014.26	
Township 41 N., range 35 E	17,901.54	5,120.00		23,021.54	Embracing Quin's River Valley.
Township 41 N., range 36 E	11,515.62	11,533.99		23,049.61	
Township 41 N., range 37 E	23,006.52			23,006.52	
Township 42 N., range 36 E	23,057.34			23,057.34	
Township 42 N., range 37 E	23,045.46			23,045.46	Embracing East Humboldt Valley.
Township 43 N., range 36 E	15,357.66	7,654.48		23,012.14	
Township 43 N., range 37 E	22,120.56			23,120.56	
Township 44 N., range 36 E	10,244.38	12,782.87		23,027.25	
Township 44 N., range 37 E	23,096.68			23,096.68	Embracing Middle Humboldt Valley.
Township 33 N., range 54 E	8,802.30	14,233.12		23,035.42	
Township 35 N., range 59 E	14,471.86	8,647.80		23,119.66	
Township 35 N., range 39 E	2,730.00	20,317.20		23,037.20	
Township 35 N., range 40 E	22,961.31			22,961.31	Embracing Middle Humboldt Valley.
Township 35 N., range 42 E	20,441.14	2,460.32		22,901.46	
Township 36 N., range 40 E	14,384.50	8,645.04		23,029.54	
Township 36 N., range 41 E	10,070.66	12,927.60		22,998.26	
Township 36 N., range 42 E	23,037.79			23,037.79	Embracing Lower Carson Valley.
Township 37 N., range 38 E	8,160.00	13,991.76	800.00	22,951.76	
Township 37 N., range 39 E	2,400.00	19,099.20	1,421.32	22,920.52	
Township 37 N., range 40 E	5,109.78	17,920.00		23,029.78	
Township 37 N., range 41 E	6,720.00	16,291.20		23,011.20	Embracing Middle Humboldt Valley.
Township 37 N., range 42 E	22,998.69			22,998.69	
Township 10 N., range 24 E	15,457.66	7,726.24		23,183.90	
Township 11 N., range 24 E	23,096.09			23,096.09	
Township 11 N., range 25 E	9,742.12	13,219.00		22,961.12	Embracing Lower Carson Valley.
Township 12 N., range 25 E	14,423.94	8,472.00		22,895.94	
Township 13 N., range 25 E	15,331.90	7,516.08		22,847.98	
Township 14 N., range 25 E	22,924.75			22,924.75	
Township 15 N., range 25 E	22,869.94			22,869.94	Embracing Middle Humboldt Valley.
Township 16 N., range 22 E	6,212.30	16,791.76		23,004.06	
Township 16 N., range 23 E	3,838.81	19,196.00		23,034.81	
Township 16 N., range 24 E	3,832.82	19,182.00		23,014.82	
Township 16 N., range 25 E	1,615.76	21,460.32		23,076.08	Embracing Lower Carson Valley.
Township 17 N., range 22 E	3,829.86	19,098.60		22,928.46	
Township 17 N., range 23 E	3,822.58	19,073.00		22,895.58	
Township 17 N., range 24 E	3,835.28	19,146.40		22,981.68	
Township 17 N., range 25 E	23,104.00			23,104.00	Embracing Middle Humboldt Valley.
Township 18 N., range 25 E	7,680.00	15,407.27		23,087.27	
Township 18 N., range 26 E	7,796.41	15,197.00		22,993.41	
Township 18 N., range 28 E	18,854.86		4,080.00	22,934.86	
Township 18 N., range 29 E	18,732.69		4,263.64	22,996.33	Embracing Lower Carson Valley.
Township 19 N., range 26 E	5,120.00	17,858.08		22,978.08	
Township 20 N., range 29 E	23,174.69			23,174.69	
Township 21 N., range 29 E	7,280.00		15,745.60	23,025.60	

## C.—List of lands surveyed in the State of Nevada, &amp;c.—Continued.

Township and range.	Public land.	Unsurveyed.		Total.	Remarks.
		Barren.	Swamp.		
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	
Township 45 N., range 37 E.	20, 187.20	2, 881.94	.....	23, 069.14	Embracing Quin's River Valley.
Township 45 N., range 38 E.	22, 980.37	.....	.....	22, 980.37	
Township 46 N., range 37 E.	6, 560.38	16, 480.00	.....	23, 040.38	
Township 46 N., range 38 E.	23, 040.15	.....	.....	23, 040.15	
Township 32 N., range 45 E.	17, 524.95	4, 788.60	680.00	22, 993.55	Embracing Humboldt Valley.
Township 32 N., range 46 E.	15, 652.74	5, 280.00	2, 040.00	22, 972.74	
Township 33 N., range 44 E.	22, 066.07	946.20	.....	22, 982.27	
Township 33 N., range 45 E.	11, 282.21	11, 689.00	.....	22, 962.21	
Township 34 N., range 40 E.	11, 415.56	11, 513.28	.....	22, 928.84	
Township 34 N., range 42 E.	7, 642.79	15, 284.48	.....	22, 927.27	
Township 34 N., range 43 E.	22, 906.40	.....	.....	22, 906.40	
Township 34 N., range 44 E.	22, 955.88	.....	.....	22, 955.88	
Township 35 N., range 43 E.	22, 883.40	.....	.....	22, 883.40	
Township 35 N., range 44 E.	22, 929.52	.....	.....	22, 929.52	
Township 36 N., range 43 E.	23, 032.49	.....	.....	23, 032.49	Embracing Walker River Valley.
Township 36 N., range 44 E.	23, 032.01	.....	.....	23, 032.01	
Township 37 N., range 43 E.	22, 968.55	.....	.....	22, 968.55	
Township 37 N., range 44 E.	21, 789.51	1, 200.00	.....	22, 989.51	
Township 6 N., range 27 E.	8, 599.96	14, 320.80	.....	22, 920.76	
Township 7 N., range 27 E.	5, 440.00	17, 444.00	.....	22, 884.00	
Township 9 N., range 27 E.	10, 799.81	11, 463.80	.....	22, 263.61	
Township 10 N., range 27 E.	17, 994.97	4, 844.80	.....	22, 837.77	
Township 11 N., range 26 E.	10, 766.02	12, 328.40	.....	23, 094.42	
Township 13 N., range 26 E.	15, 610.26	7, 358.16	.....	22, 968.42	
Total .....	1, 552, 547.44	778, 391.93	53, 795.43	2, 384, 734.80	

## D.—Statement of plats made in the office of the United States surveyor general of Nevada for the fiscal year 1868 and 1869.

Description.	Original.	Department.	Register.	Sketches for deputies.	Total.
Plats of meridians .....	2	2	.....	.....	4
Plats of townships .....	6	6	.....	.....	12
Plats of township subdivisions .....	100	100	112	.....	312
Plats of mineral claims .....	49	49	49	.....	147
Sketches for deputies .....	.....	.....	.....	10	10
Mineral claims re-copied .....	5	34	3	.....	42
Transcript maps of the State of Nevada .....	2	2	.....	.....	4
Transcript maps of mining districts .....	24	24	4	.....	52
Plats of standard .....	1	1	.....	.....	2
Total .....	.....	.....	.....	.....	585

## E.—Statement of mineral surveys re-copied.

No. 38, North Star; No. 43, Old Colony; No. 39, Knickerbocker, two; No. 42, Hale & Norcross, two; No. 38, Golden Swan; No. 43, Homestead; No. 39, Brophy; No. 40, Bailey; No. 37, Utah; No. 40, Cosmopolitan; No. 41, Lady Bryan; No. 37, Dean; No. 37, Union; No. 38, Ohio; No. 39, Buckeye; No. 37, South American; No. 46, Silver Queen; No. 42, Manhattan; No. 48, Confidence; No. 40, Timoke; No. 41, Kentucky; No. 45, Mettacom; No. 39, Diana; No. 37, Eldorado South; No. 37, Twin; No. 39, Atlantic and Pacific; No. 37, Atlantic and Pacific; No. 38, Montgomery; No. 38, Spotted Tiger, three; No. 37, Radical, three; No. 39, Bald Eagle, three.

F.—List of special deposits with the Sub-Treasury of the United States for mineral claims in Nevada during 1867, 1868, and 1869.

Name.	Survey number.	Dis- trict.	Deputy.	Amount.	Remarks.
Radical .....	37*	8	R. A. Chase .....	\$96 00	Closed.
Spotted Tiger .....	38*	8	do .....	96 00	Do.
Bald Eagle .....	39*	8	do .....	96 00	Do.
Dean .....	37*	7	T. F. Kidder .....	60 00	Do.
South American .....	37*	4	W. L. DeWitt .....	60 00	Do.
North Star .....	38*	4	do .....	60 00	Do.
Utah .....	37*	7	J. F. Kidder .....	63 00	Do.
Golden Swan .....	38*	7	do .....	75 00	Do.
Diana .....	39*	4	W. L. DeWitt .....	60 00	Do.
Utah .....	38*	7	J. F. Kidder .....	50 00	Do.
Brophy .....	39*	7	do .....	50 00	Do.
Bailey .....	40*	7	do .....	60 00	Do.
Knickerbocker .....	39*	7	do .....	50 00	Do.
Lady Bryan .....	41*	7	do .....	75 00	Do.
Kentucky .....	41*	4	W. L. DeWitt .....	No charge	Do.
Timoke .....	40*	4	do .....	60 00	Do.
Manhattan .....	47*	4	do .....	60 00	Do.
Atlantic and Pacific .....	37*	5	P. K. Roots .....	50 00	Do.
Montgomery .....	38*	5	do .....	50 00	Do.
Atlantic and Pacific .....	39*	5	do .....	50 00	Do.
Cosmopolitan .....	40*	7	J. F. Kidder .....	10 00	Do.
Hale and Norcross .....	42*	7	do .....	215 00	Do.
Old Colony .....	43*	4	W. L. DeWitt .....	60 00	Do.
El Dorado .....	37*	3	D. H. Barker .....	60 00	Do.
Big Smokey .....	44*	4	W. L. DeWitt .....	60 00	Do.
Silver Queen .....	46*	4	do .....	60 00	Do.
Homestead .....	43*	7	T. F. Kidder .....	40 00	Do.
Mettacom .....	45*	4	W. L. DeWitt .....	69 00	Do.
Twin .....	37*	3	D. H. Barker .....	100 00	Do.
Manhattan .....	42*	4	W. L. DeWitt .....	60 00	Do.
Union .....	37*	7	J. F. Kidder .....	10 00	Do.
Ohio .....	38*	7	do .....	10 00	Do.
Buckeye .....	39*	7	do .....	10 00	Do.
Confidence .....	48*	4	W. L. DeWitt .....	60 00	Do.
West .....	37*	3	D. H. Barker .....	150 00	Do.
Northern Star .....	38*	3	do .....	150 00	Do.
Harrison .....	46*	7	J. F. Kidder .....	75 00	Do.
Opal .....	45*	7	do .....	75 00	Do.
Succor .....	44*	7	do .....		Not completed.
Rogers .....	47*	7	do .....	75 00	Closed.
Rapidan .....	40*	7	do .....	10 00	Do.
Fifty-six .....	40	5	P. K. Roots .....	50 00	Do.
Silver Bend .....	38	3	D. H. Barker .....	60 00	Do.
Montana .....	41	5	P. K. Roots .....	50 00	Do.
Grant .....	42	5	do .....	50 00	Do.
Genessee .....	41	7	J. F. Kidder .....	75 00	Do.
Front Lode .....	42	7	do .....	75 00	Do.
Columbia .....	43	7	do .....	75 00	Do.
Victorine .....	49	4	W. L. DeWitt .....	70 00	Do.
Alabama .....	48	7	J. F. Kidder .....	75 00	Do.
J. R. Bigelow .....	50	4	W. L. DeWitt .....	70 00	Do.
Do .....	51	4	do .....	70 00	Do.
Virginia Sedina .....	49	7	T. D. Parkinson .....	75 00	Do.
Pruyn and Pullen .....	52	4	W. L. DeWitt .....	70 00	Do.
Twin .....	44	7	T. D. Parkinson .....	75 00	Do.
Numa Duperus .....	43	5	P. K. Roots .....	50 00	Do.
Table Mountain .....	45	7	T. D. Parkinson .....	75 00	Do.
Emigrant Junior .....	46	7	do .....	75 00	Do.
German .....	37	7	do .....	75 00	Do.
Central .....	50	7	do .....	150 00	Do.
Badger .....	37	5	P. K. Roots .....	75 00	Do.
Pacific .....	38	5	do .....	75 00	Do.
Imperial .....	37	5	do .....	75 00	Do.
P. A. Paxton .....	53	4	W. L. DeWitt .....	70 00	Do.
Savage .....	51	7	T. D. Parkinson .....	250 00	Do.
Reese River, consolidated .....	54	4	W. L. DeWitt .....	70 00	Do.
Do .....	55	4	do .....	70 00	Do.
Do .....	56	4	do .....	70 00	Do.
Do .....	57	4	do .....	70 00	Do.
Do .....	58	4	do .....	70 00	Do.
Do .....	59	4	do .....	70 00	Do.
Trench, consolidated .....	53	7	T. D. Parkinson .....	150 00	Do.
Burke and Hamilton .....	54	7	do .....	75 00	Do.
Challenge .....	55	7	do .....	75 00	Do.
Eclipse .....	52	7	do .....	150 00	Do.
Reese River, consolidated .....	60	4	W. L. DeWitt .....	70 00	Do.
Do .....	61	4	do .....	70 00	Do.
Soshone .....	62	4	do .....	70 00	Do.



## F.—List of special deposits with the Sub-Treasury of the United States, &amp;c.—Continued.

Name.	Survey number.	District.	Deputy.	Amount.	Remarks.
Jersey .....	44	5	P. K. Roots .....	\$50 00	Closed.
Empire North .....	56	7	T. D. Parkinson ..	60 00	Do.
Empire South .....	57	7	.....do .....	60 00	Do.
Justice and Independent .....	48	7	.....do .....	60 00	Do.
W. C. Lipp .....	63	4	W. L. DeWitt .....	70 00	Do.
Do. ....	64	4	.....do .....	70 00	Do.
Savannah .....	65	4	.....do .....	70 00	Do.
Buckeye .....	47	7	T. D. Parkinson ..	60 00	Do.
Bacon North .....	58	7	.....do .....	60 00	Do.
Bacon South .....	59	7	.....do .....	60 00	Do.
Confidence .....	60	7	.....do .....	60 00	Do.
Chollar Potosi .....	61	7	.....do .....	75 00	Do.

Those marked with (\*) in last year's report, but amount not given.

## G.—Statement of account of appropriation for surveys of public lands in Nevada during the fiscal year 1868 and 1869.

## Dr.

Amount paid quarter ending September 30, 1868 .....	\$12,487 85
Amount paid quarter ending December 31, 1868 .....	11,569 33
Amount paid quarter ending March 31, 1869 .....	24,693 13
Amount paid quarter ending June 30, 1869 .....	11,427 46
	<hr/>
By balance .....	60,177 77
	<hr/>
	72,839 41

## Cr.

By balance .....	\$22,839 41
By appropriation of July 20, 1868 .....	50,000 00
	<hr/>
	72,839 41
	<hr/>
By balance July 1, 1869 .....	12,661 64

## H.—Statement of account of appropriation for compensation of the United States surveyor general and the employes in his office during the fiscal year 1868 and 1869.

## Dr.

Amount paid quarter ending September 30, 1868 .....	\$2,113 04
Amount paid quarter ending December 31, 1868 .....	2,325 00
Amount paid quarter ending March 31, 1869 .....	2,325 00
Amount paid quarter ending June 30, 1869 .....	2,292 03
	<hr/>
By balance .....	9,055 07
	<hr/>
	3,465 79
	<hr/>
	12,520 86

## Cr.

By balance .....	\$6,020 86
By appropriation of July 20, 1868 .....	6,500 00
	<hr/>
	12,520 86
	<hr/>
By balance July 1, 1869 .....	3,465 79

*I.—Statement of account of appropriation for rent of office, fuel, books, stationery, and other incidental expenses, including pay of messenger, during the fiscal year 1868 and 1869.*

## DR.

Amount paid quarter ending September 30, 1868.....	\$815 90
Amount paid quarter ending December 31, 1868 .....	784 57
	<hr/>
By balance .....	1, 600 47
	<hr/>
	4 91
	<hr/>
	1, 605 38
	<hr/>

## CR.

By balance .....	\$105 38
By appropriation of July 20, 1868.....	1, 500 00
	<hr/>
	1, 605 38
	<hr/>
By balance July 1, 1869.....	4 91
	<hr/>

*K.—Statement for the surveying service in the district of Nevada for the fiscal year ending June 30, 1871.*

For surveying standard, exterior, township, and subdivision lines in the vicinity of the Central Pacific railroad.....	\$30, 000
For surveying standard, exterior, township, and subdivision lines in vicinity of the White Pine mining district.....	10, 000
For surveying subdivision lines in the Walker River Valley and vicinity..	7, 800
For compensation of surveyor general.....	3, 000
For compensation of clerks.....	7, 800
Rent of office, stationery, and incidental expenses, including salary of messenger .....	4, 200
	<hr/>
Total .....	62, 800
	<hr/>

*No. 18 K.—Annual report of the surveyor general of Idaho.*

SURVEYOR GENERAL'S OFFICE,  
Boise City, Idaho Territory, August 15, 1869.

SIR: In accordance with your instructions, under date of April 14, 1869, I have the honor to submit the following report in duplicate of the surveying service in Idaho for the fiscal year ending June 30, 1869.

A.—Estimate of expenses incident to the survey of the public lands in Idaho for the fiscal year ending June 30, 1871.

B.—Tabular list of all townships surveyed since this office was opened, showing areas of public lands and reservations.

C.—Statement of expenditures of the appropriations for compensation of surveyor general and clerks in his office for the fiscal year ending June 30, 1869.

D.—Statement of the incidental and office expenses for the fiscal year ending June 30, 1869.

E.—Statement of expenditures of the appropriations for the fiscal year ending June 30, 1869.

F.—Diagram of Idaho, compiled from actual surveys and the most reliable information at our command, and showing all the lines actually run and approved up to date.

G.—Statement showing the condition of surveying contracts entered into since June 30, 1868.

H.—Statement of descriptive notes sent to local land office.

This office was informed on the 29th day of July, 1868, that an appropriation of \$15,000 had been made by Congress for the prosecution of the public surveys in Idaho for the fiscal year ending June 30, 1869. Owing to the surveying season being so far advanced before the appropriation was made, only \$13,144 48 was made available last season, and the balance was intended to cover a portion of the contracts let this season.

On the 3d of March an appropriation of \$25,000 for surveys in this surveying dis-

trict was made, and on the 27th day of May official information was received that I was authorized to let surveying contracts to the amount of \$10,000, and that the remaining \$15,000 would be applied by my successor, when he shall have qualified and entered upon the discharge of his duties.

I placed this amount in a contract with A. M. Thompson, an old and faithful deputy, to make surveys in the north and *oldest settled* portion of the Territory, and at the urgent and repeated requests of the local land officers at Lewistown, as well as the solicitations of the settlers who reside within the boundaries of that land district.

The contract with Mr. Thompson has been reduced to \$5,000 by your order, and contracts to a like amount let in the southern portion of the Territory, in accordance with my instructions.

The surveys in this district have been prosecuted to the full extent of the means placed at my disposal, and the office work is fully completed up to date, and the papers and archives belonging to the same ready to be turned over to my successor.

I have nothing to add to my last annual report, and will content myself with a recommendation or two, hoping they will meet with your approbation.

I would most earnestly urge the necessity of an appropriation for the survey of the exterior boundaries of the Indian reservations in this Territory, for it is utterly impossible to locate said lines, or for a settler upon the public lands to know whether he is trespassing upon the rights of the Indians or not, and serious trouble may arise between the settler and the Indians claiming treaty rights, who have been in many cases forced upon these reservations against their will, and consequently ready to take offense at the slightest trespass upon their rights, no matter how innocently committed by the settler.

If these *reservation lines* are not to be considered a myth by the settler, they should be surveyed and permanently marked as soon as possible. The truth is, the whole Indian policy is a farce.

The agricultural interests of the Territory are in a prosperous condition, and it is fully demonstrated that most of the crops produced in the middle States are harvested equally if not more abundantly here. At this time these interests are confined to the low lands, which can be irrigated at a small outlay of money. There are, however, thousands of acres of land which might be made productive under a wholesome modification of the United States land laws, or by special enactments of Congress granting, for instance, alternate sections or quarter sections to companies who will construct ditches of certain capacities for irrigating, milling, and manufacturing purposes.

Rain seldom falls in this Territory, and crops can only be raised by irrigation. Hence there are thousands of acres that a careless voyager would declare a *worthless sage plain*, which by a proper system of *watering*, under the fostering care of the government, can be made highly productive, and the *sage* that now covers thousands of acres would disappear, and the orchard and grain field would take its place.

The quartz-mining interest has not made the advancement that the richness of the lodes warranted us in anticipating, owing in part to the prospects of greatly reduced prices in labor and machinery on the completion of the Pacific railroad; and it is confidently believed that another season will find our quartz mines generally yielding the precious metals in quantities that will compare with the yield of the Poorman, Oro-Fino, and Golden Chamott of Owyhee.

No locations have been made for surveys of quartz claims, although several notices have been published by the register of the land office preparatory to making such applications, and it is presumed that a few claims will be surveyed during the coming fall; and in this connection I will say that no specimens of ores have been collected by this office, as the surveys have been confined entirely to agricultural lands, and this office had no means to pay for specimens or their transportation. Hence no alternative was left but to wait until the mineral surveys are commenced, when these collections will be made and sent to your department.

Extensive placer mines have recently been discovered in the northern portion of the Territory, on a stream commonly known as Middle Salmon, and hundreds are now flocking to the New Eldorado, where they obtain as high as two and a half dollars to the pan.

There are several matters that I proposed to embody in this report, which you have anticipated by interrogatory letters, and will be answered in separate papers.

Hoping my official acts have in the main met your approbation, I subscribe myself truly your obedient servant,

L. F. CARTEE,  
Surveyor General of Idaho.

HON. JOSEPH S. WILSON,  
Commissioner of the General Land Office.



A.—*Estimate of expenses incident to the survey of the public lands in Idaho for the fiscal year ending June 30, 1871.*

For salary of surveyor general.....	\$3, 000
For salary of clerks .....	4, 000
For rent of office, fuel, books, messenger, and other expenses .....	3, 000
For 300 miles of standard lines, at \$15 per mile .....	4, 500
For exterior boundaries of 60 townships, at \$12 per mile .....	8, 640
For subdivision lines of same .....	36, 000

B.—*Tabular list of all townships surveyed since this office was opened, showing areas of public lands and reservations.*

No. sur- veyed.	Designation of townships.	Public lands.	Military reser- vations.	Total.
1	Township 3 north, range 2 east.....	21, 231. 12	1, 311. 61	22, 542. 73
2	Township 4 north, range 1 west.....	22, 410. 68		22, 410. 68
3	Township 5 north, range 1 west.....	22, 863. 88		22, 863. 88
4	Township 4 north, range 1 east.....	22, 037. 99		22, 037. 99
5	Township 4 north, range 2 east.....	22, 814. 63	147. 77	22, 962. 40
6	Township 4 north, range 2 west.....	22, 573. 00		22, 573. 00
7	Township 4 north, range 3 west.....	22, 442. 49		22, 442. 49
8	Township 4 north, range 4 west.....	22, 646. 25		22, 646. 25
9	Township 5 north, range 4 west.....	10, 959. 66		10, 959. 66
10	Township 5 north, range 1 east.....	7, 617. 06		7, 617. 06
11	Township 5 north, range 2 east.....	1, 943. 34		1, 943. 34
12	Township 1 north, range 5 east.....	23, 081. 95		23, 081. 95
13	Township 1 north, range 4 east.....	23, 087. 02		23, 087. 02
14	Township 1 north, range 1 east.....	11, 527. 39		11, 527. 39
15	Township 2 north, range 1 west.....	7, 680. 00		7, 680. 00
16	Township 4 south, range 1 east.....	23, 110. 53		23, 110. 53
17	Township 5 north, range 5 west.....	22, 375. 54		22, 375. 54
18	Township 4 south, range 1 west.....	22, 857. 51		22, 857. 51
19	Township 6 north, range 2 west.....	22, 424. 38		22, 424. 38
20	Township 6 north, range 3 west.....	3, 208. 45		3, 208. 45
21	Township 7 north, range 1 west.....	3, 064. 43		3, 064. 43
22	Township 7 north, range 2 west.....	11, 436. 52		11, 436. 52
23	Township 7 north, range 4 west.....	4, 985. 47		4, 985. 47
24	Township 7 north, range 5 west.....	17, 036. 69		17, 036. 69
25	Township 8 north, range 1 west.....	2, 546. 00		2, 546. 00
26	Township 8 north, range 2 west.....	17, 817. 84		17, 817. 84
27	Township 9 north, range 5 west.....	10, 432. 48		10, 432. 48
28	Township 5 north, range 6 west.....	652. 06		652. 06
29	Township 6 north, range 1 west.....	15, 129. 09		15, 129. 09
30	Township 6 north, range 5 west.....	10, 183. 93		10, 183. 93
31	Township 6 north, range 6 west.....	1, 770. 50		1, 770. 50
32	Township 7 north, range 6 west.....	22, 175. 82		22, 175. 82
33	Township 8 north, range 4 west.....	22, 115. 20		22, 115. 20
34	Township 8 north, range 5 west.....	13, 281. 37		13, 281. 37
	Grand total .....	511, 515. 18	1, 459. 38	512, 974. 56

C.—*Statement of expenditure of appropriation for compensation of surveyor general and clerks in his office for the fiscal year ending June 30, 1869.*

Dr.

To amount paid surveyor general and clerks third quarter, 1868.....	\$1, 575 00
To amount paid surveyor general and clerks fourth quarter, 1868 .....	1, 575 00
To amount paid surveyor general and clerks first quarter, 1869 .....	1, 575 00
To amount paid surveyor general and clerks second quarter, 1869.....	1, 575 00
To balance .....	2, 699 73
	<u>8, 999 73</u>

## Cr.

July 1, 1868.—By balance.....	\$1,999 73
By appropriation approved July 20, 1868, as advised by letter from the department of August 3, 1868.....	7,000 00
	<u>8,999 73</u>
Balance .....	<u>2,639 73</u>

## D.—Statement of the incidental and office expenses for the fiscal year ending June 30, 1869.

## Dr.

To amount expended third quarter, 1868.....	\$764 67
To amount expended fourth quarter, 1868 .....	329 36
To amount expended first quarter, 1869 .....	246 25
To amount expended second quarter, 1869 .....	448 79
To balance.....	1,022 68
	<u>2,811 75</u>

## Cr.

July 1, 1868.—By balance.....	\$1,811 75
By amount of appropriation approved July 20, 1868, as advised by letter from the department of August 3, 1868.....	1,000 00
	<u>2,811 75</u>
Balance .....	<u>1,022 68</u>

## E.—Statement of expenditure of the appropriation for the fiscal year ending June 30, 1869.

## Dr.

To amount reported for payment on contract No. 9, Peter W. Bell.....	\$4,976 93
To amount reported for payment on contract No. 9, Peter W. Bell.....	1,198 87
To amount reported for payment on contract No. 10, Allen M. Thompson ..	3,037 33
To amount reported for payment on contract No. 10, Allen M. Thompson ..	3,941 45
To balance.....	1,913 43
	<u>15,058 01</u>

## Cr.

June 30, 1868.—By balance.....	\$58 01
By appropriation approved July 20, 1868, as advised by letter from the department of August 3, 1868.....	15,000 00
	<u>15,058 01</u>
Balance.....	<u>1,913 43</u>

G.—Statement showing the condition of surveying contracts entered into since June 30, 1868.

No. contract.	Name of deputy.	Date of contract.	Character, amount, and locality of work.	Remarks.
9	Peter W. Bell.....	July 29, 1868	Exterior lines of townships 1, 2, 3, 4, 5, and 6 south, ranges 1, 2, and 3 east, and 1 and 2 west, and townships 5 and 6 south, range 3 west, and of township 6 south, range 4 west; and the subdivision lines of township 1 north, range 1 east, and of township 2 north, range 1 west, and of township 4 south, ranges 1 east and 1 west of the Boise meridian; and the first standard parallel south and east—30 miles.	Surveys completed, notes returned and approved, and plats and transcripts transmitted.
10	Allen M. Thompson...	July 29, 1868	Subdivision lines of townships 6, 7, 8, and 9 north, ranges 1, 2, 3, 4, and 5 west, and township 5 north, ranges 5 and 6 west.	Surveys completed, notes returned and approved, and plats and transcripts transmitted.
11	Allen M. Thompson...	May 28, 1869	Exterior lines of townships 31, 32, 33, 34, and 35 north, ranges 1 and 2 east, and 1, 2, and 3 west, and of townships 30, 31, and 32 north, range 3 east, and of townships 32, 33, 34, 35, and 36 north, ranges 4, 5, and 6 west of the Boise meridian, and the Boise meridian north, from the south boundary of township No. 36 north, and between ranges 5 and 6 west, 100 miles, and the subdivision lines of the above named townships.	Deputy now in the field.

H.—Statement of descriptive notes sent to local land office.

Township and range.	Date when transmitted.	Township and range.	Date when transmitted.
Township 1 north, range 1 east.....	May 27, 1869	Township 7 north, range 4 west....	May 27, 1869
Township 1 north, range 4 east.....	May 27, 1869	Township 7 north, range 5 west....	May 27, 1869
Township 1 north, range 5 east.....	May 27, 1869	Township 8 north, range 1 west....	May 27, 1869
Township 3 north, range 3 east.....	May 27, 1869	Township 8 north, range 2 west....	May 27, 1869
Township 5 north, range 1 east.....	May 27, 1869	Township 9 north, range 5 west....	May 27, 1869
Township 5 north, range 2 east.....	May 28, 1869	Township 5 north, range 5 west....	May 27, 1869
Township 2 north, range 1 west.....	May 27, 1869	Township 5 north, range 6 west....	May 27, 1869
Township 4 south, range 1 east.....	May 27, 1869	Township 6 north, range 1 west....	May 27, 1869
Township 4 south, range 1 west.....	May 27, 1869	Township 6 north, range 5 west....	May 27, 1869
Township 6 north, range 2 west.....	May 27, 1869	Township 6 north, range 6 west....	May 27, 1869
Township 6 north, range 3 west.....	May 27, 1869	Township 7 north, range 3 west....	May 27, 1869
Township 7 north, range 1 west.....	May 27, 1869	Township 8 north, range 4 west....	May 27, 1869
Township 7 north, range 2 west.....	May 27, 1869	Township 8 north, range 5 west....	May 27, 1869

No. 18 L.—Annual report of the surveyor general of Montana.

UNITED STATES SURVEYOR GENERAL'S OFFICE,  
Helena, Montana Territory, September 8, 1869.

SIR: I have the honor to submit the following report, accompanied by the usual tabular statements, to wit:

A.—Showing condition of the appropriation for the surveys of the public lands for the fiscal year ending June 30, 1869.

B.—Showing amount of deposits made for field and office work and publication of notice in cases of mineral claims.

C.—Showing lists of lands surveyed in Montana since the inception of the surveys up to June 30, 1869.



D.—Showing condition of surveys contracted for by the surveyor general of Montana under appropriations by Congress for the fiscal year ending June 30, 1869.

E.—Showing condition of contracts for mineral surveys.

F.—Showing the number of township plats, descriptive lists of land and corners furnished to the Helena land office since inception of surveys.

G.—Showing condition of appropriation for clerks in surveyor general's office of Montana for the fiscal year ending June 30, 1869.

H.—Showing condition of appropriation for salary of surveyor general for the fiscal year ending June 30, 1869.

I.—Showing condition of the appropriation for incidentals for the surveyor general's office of Montana for the fiscal year ending June 30, 1869.

J.—Statement as called for by circular of July 24, 1869.

K.—Showing material resources, &c., of Montana Territory, as called for by circular of July 2, 1869.

As to the material wealth—mineral and agricultural—of this district, my short stay here will not allow me to speak as fully as I would wish, but I can say that I have seen nothing to lead me to differ with my predecessor in his report of 1867 and 1868.

The present year has been a very severe and trying one to our new Territory. The last winter was a very mild one, and but little snow fell, and, as a consequence, our streams, usually fed by the melting snow, have this year failed to furnish means by which the bright golden dust of our valleys might be taken from its long resting-place and made submissive to man's use.

The agriculturists have been damaged by the same want of water, and yet nowhere can there be such an abundant return for labor as here when water can be had.

The average yield per acre of the principal crops, as shown by careful inquiry, has been as follows: Wheat, 35 bushels; potatoes, 200 bushels; oats, 50 bushels; barley, 45 bushels. This is the average yield of the whole Territory, while fields have often been known to yield 75 bushels to the acre, and oats the same. One peculiarity of the grain in this country is its over-weight, oats weighing from 40 to 45 pounds per bushel.

As proof of our permanent and increasing prosperity, the sales and pre-emption of lands for the last month have been larger than any previous month, and have been as follows: Sales and homesteads, 5,000 acres; pre-emption, 8,000 acres.

From the best information at hand I have compiled a tabular statement showing the aggregate products of the Territory for the past year, from which it will be seen that our products amount to nearly fourteen million dollars, all produced where a few years ago it was supposed that sterile rocks alone existed, only traversed by the red man, and to be the perpetual home of wild beasts.

Imagination alone can paint the future of this mountain State, when her rocky peaks shall yield up their long-hidden treasures and her beautiful valleys blossom under the husbandman's hands, as they must and will when the iron horse shall give us a quick and safe communication, not only with our sister States of the Atlantic slope, but with the civilization of the further East.

Respectfully submitted.

H. D. WASHBURN,  
*Surveyor General.*

## A.—Statement of the condition of the appropriation for the surveys of public lands in Montana for the fiscal year ending June 30, 1869.

No. of con- tract.	Date of account.	Names of deputies.	Amount.
		Dr.	
2	July 1, 1868	Benjamin F. Marsh.....	\$1,758 03
2	July 10, 1868	Benjamin F. Marsh.....	600 07
2	July 17, 1868	Walter W. Johnson.....	1,121 00
2	Sept. 24, 1868	Walter W. Johnson.....	2,131 35
2	Oct. 20, 1868	Benjamin F. Marsh.....	1,765 30
5	Nov. 18, 1868	J. H. Featherston & C. L. Jewett.....	3,826 20
2	Dec. 17, 1868	Benjamin F. Marsh.....	1,796 07
11	Jan. 26, 1869	Walter W. Johnson.....	3,370 05
8	Jan. 26, 1869	Benjamin F. Marsh.....	2,810 79
13	Feb. 5, 1869	Charles L. Jewett.....	1,717 02
14	Feb. 22, 1869	Daniel L. Griffith.....	1,491 52
10	Mar. 6, 1869	John L. Corbett.....	2,633 64
12	June 8, 1869	Benjamin F. Marsh.....	852 02
12	June 12, 1869	Benjamin F. Marsh.....	741 28
12	Aug. 13, 1869	Benjamin F. Marsh.....	604 37
14	Aug. 13, 1869	Daniel L. Griffith.....	1,540 03
13	Aug. 13, 1869	Charles L. Jewett.....	1,542 93
10	.....	John L. Corbett..... (Estimated) ..	2,764 86
12	.....	Benjamin F. Marsh..... (Estimated) ..	1,789 15
13	Sept. 8, 1869	C. L. Jewett.....	1,339 47
14	.....	Daniel L. Griffith..... (Estimated) ..	1,648 09
			37,845 55
		Cr.	
	July 1, 1868	By balance.....	\$17,341 77
	July 20, 1868	By appropriation as per act approved.....	20,000 00
		By balance (estimated) over appropriation.....	503 78
			37,845 55

## B.—Statement showing the amount of deposits made for field and office work and publication of notice, under act of Congress July 26, 1866, during the fiscal year ending June 30, 1869.

Office work—Amount of deposit made during the year.....	\$269 00
Field work—Amount of deposit made during the year.....	305 00
Publication of notice.....	80 00
Total.....	654 00

C.—A list of lands surveyed in Montana since the inception of the surveys up to June 30, 1869.

No. of town- ships surveyed.	Description.	Public land.	Unsurveyed mountain land.	Total.
		Acres.	Acres.	Acres.
1	Township 5 north, range 1 east.....	23,046.10		23,046.10
2	Township 4 north, range 1 east.....	22,882.23		22,882.23
3	Township 10 north, range 4 west.....	23,060.37		23,060.37
4	Township 11 north, range 3 west.....	22,972.08		22,972.08
5	Township 9 north, range 3 west.....	22,999.73		22,999.73
6	Township 9 north, range 2 west.....	23,028.83		23,028.83
7	Township 1 north, range 1 east.....	23,219.71		23,219.71
8	Township 1 north, range 2 east.....	23,022.15		23,022.15
9	Township 1 north, range 3 east.....	23,022.32		23,022.32
10	Township 1 north, range 4 east.....	23,070.80		23,070.80
11	Township 5 north, range 2 east.....	22,938.84		22,938.84
12	Township 1 south, range 1 east.....	22,886.81		22,886.81
13	Township 5 north, range 10 west.....	23,022.79		23,022.79
14	Township 6 north, range 10 west.....	23,023.96		23,023.96
15	Township 7 north, range 9 west.....	22,935.47		22,935.47
16	Township 8 north, range 9 west.....	22,924.06		22,924.06
17	Township 1 south, range 3 east.....	22,844.90		22,844.90
18	Township 1 south, range 4 east.....	22,923.18		22,923.18
19	Township 2 south, range 4 east.....	22,897.30		22,897.30
20	Township 2 south, range 5 east.....	22,862.39		22,862.39
21	Township 3 south, range 5 east.....	15,318.19	7,640.00	22,958.19
22	Township 1 south, range 5 east.....	22,847.94		22,847.94
23	Township 1 north, range 5 east.....	22,983.71		22,983.71
24	Township 8 north, range 2 east.....	23,305.36		23,305.36
25	Township 9 north, range 1 west.....	23,072.69		23,072.69
26	Township 9 north, range 2 east.....	23,104.19		23,104.19
27	Township 4 south, range 1 west.....	22,957.01		22,957.01
28	Township 5 south, range 1 west.....	23,195.58		23,195.58
29	Township 10 north, range 2 west.....	22,938.79		22,938.79
30	Township 10 north, range 3 west.....	22,918.79		22,918.79

D.—Statement showing condition of surveys contracted by United States surveyor general of Montana, under appropriations by Congress for the fiscal year ending June 30, 1869.

Name of deputy.	Contract.		Character and location of work.	Amount of contract.
	No.	Date.		
John L. Corbett....	10*	1868. Aug. 24...	First standard parallel south, 42 miles west from principal meridian; exteriors of township 5 south, ranges 2, 4, and 5 west; exterior and subdivision lines of townships 1, 2, 3, 4, and 5 south, range 1 west, and township 5 south, range 3 west.	\$5,454
Walter W. Johnson..	11†	Sept. 5...	Second standard parallel north, through ranges 8 and 9 west from Deer Lodge guide meridian; exteriors of townships 5, 6, 7, and 8 north, range 9 west; the exterior and subdivisional lines of townships 5 and 6 north, range 10 west, and the subdivisional lines of townships 7 and 8 north, range 9 west.	3,374
Benj. F. Marsh.....	12*	Oct. 6.....	Exteriors of township 2 north, ranges 2, 3, and 4 east; township 2 south, range 6 east; subdivisional and meanders of township 2 north, ranges 2, 3, and 4 east; township 1 south, range 2 east; township 3 south, range 4 east, and township 2 south, range 6 east.	4,248
Charles L. Jewett...	13*	Oct. 7.....	Exterior and subdivisional lines of township 1 north, range 5 east; subdivisional and meanders of townships 2 and 3 north, range 1 east; exteriors, subdivisional and meanders of townships 6, 7, and 8 north, range 2 east of principal meridian.	4,104
Daniel L. Griffith...	14*	Oct. 8.....	Subdivisional lines and meanders of townships 7 and 8 north, range 1 east; township 9 north, range 1 west; exteriors and subdivisional lines of township 9 north, ranges 1 and 2 east, a guide meridian starting from base line at corner between ranges 9 and 10 west, connecting with first standard north; also exteriors of townships 1, 2, 3, and 4 north, range 9 west.	4,152

\* Completed.

† Completed; plats forwarded to General Land Office.



E.—Statement showing condition of contracts for survey of mineral lands in Montana, under act of Congress July 21, 1866, during the fiscal year ending June 30, 1869.

Name of deputy.	CONTRACT.		No. of district.	Extent of district.	No. of final surveys made.
	No.	Date.			
George B. Foote.....	4	February 28, 1868	2	Counties of Lewis and Clark, Meagher, Jefferson, Chouteau, Deer Lodge, and Missoula.	7
John L. Corbett.....	6	March 18, 1868	.....	Madison, Gallatin, and Big Horn.	.....

F.—Statement showing the description of land for which township plats and descriptive lists have been furnished to the Helena land district, Helena, Montana, since the inception of the survey up to June 30, 1869.

Township and range.	Area.	Triplicate plats—when transmitted.	Descriptive lists—when transmitted.
	<i>Acres.</i>		
Township 5 north, range 1 east.....	23,046.10	August 12, 1868	August 12, 1868
Township 4 north, range 1 east.....	22,883.23	August 12, 1868	August 12, 1868
Township 10 north, range 4 west.....	23,060.37	Sept. 11, 1868	Sept. 11, 1868
Township 11 north, range 3 west.....	22,972.08	Sept. 11, 1868	Sept. 11, 1868
Township 9 north, range 3 west.....	22,999.73	Sept. 11, 1868	Sept. 11, 1868
Township 9 north, range 2 west.....	23,028.83	Sept. 11, 1868	Sept. 11, 1868
Township 1 north, range 1 east.....	23,219.71	Jan. 26, 1869	Jan. 26, 1869
Township 1 north, range 2 east.....	23,022.15	Jan. 26, 1869	Jan. 26, 1869
Township 1 north, range 3 east.....	23,022.32	Jan. 26, 1869	Jan. 26, 1869
Township 1 north, range 4 east.....	23,070.80	Jan. 26, 1869	Jan. 26, 1869
Township 5 north, range 2 east.....	22,938.84	Jan. 26, 1869	Jan. 26, 1869
Township 1 south, range 1 east.....	22,886.81	Jan. 26, 1869	Jan. 26, 1869
Township 5 north, range 10 west.....	23,022.79	March 30, 1869	March 30, 1869
Township 6 north, range 10 west.....	23,023.96	March 30, 1869	March 30, 1869
Township 7 north, range 9 west.....	22,935.47	March 30, 1869	March 30, 1869
Township 8 north, range 9 west.....	22,924.06	March 30, 1869	March 30, 1869
Township 1 south, range 3 east.....	22,844.90	April 3, 1869	April 3, 1869
Township 1 south, range 4 east.....	22,923.18	April 3, 1869	April 3, 1869
Township 2 south, range 4 east.....	22,897.30	April 3, 1869	April 3, 1869
Township 2 south, range 5 east.....	22,862.39	April 3, 1869	April 3, 1869
Township 3 south, range 5 east.....	15,318.19	April 3, 1869	April 3, 1869
Township 1 south, range 5 east.....	22,847.94	May 20, 1869	May 20, 1869
Township 1 north, range 5 east.....	22,983.71	May 20, 1869	May 20, 1869
Township 8 north, range 2 east.....	23,305.36	May 20, 1869	May 20, 1869
Township 9 north, range 1 west.....	23,072.69	May 22, 1869	May 22, 1869
Township 9 north, range 2 east.....	23,104.19	May 22, 1869	May 22, 1869
Township 4 south, range 1 west.....	22,957.01	May 22, 1869	May 22, 1869
Township 5 south, range 1 west.....	23,195.58	May 22, 1869	May 22, 1869
Township 10 north, range 2 west.....	22,938.79	June 25, 1868	June 25, 1868
Township 10 north, range 3 west.....	22,918.79	June 25, 1868	June 25, 1868

Duplicate plats and transcripts have been forwarded to General Land Office, Washington, D. C.

G.—Statement showing the condition of the appropriation for the clerks in the office of surveyor general of Montana for the fiscal year ending June 30, 1869.

1868-'69.	Dr.	
First quarter. To Henry C. Meredith, chief clerk.....		\$450 00
First quarter. To W. W. De Lacy, draughtsman.....		375 00
First quarter. To Guy W. McGriff, clerk.....		375 00
Second quarter. To Henry C. Meredith, chief clerk.....		450 00
Second quarter. To W. W. De Lacy, draughtsman.....		375 00
Second quarter. To Guy W. McGriff, clerk.....		375 00
Third quarter. To Henry C. Meredith, chief clerk.....		450 00
Third quarter. To W. W. De Lacy, draughtsman.....		375 00
Third quarter. To Guy W. McGriff, clerk.....		375 00
May 1, 1869. To C. L. Bellerieve, clerk.....		125 00
Fourth quarter. To W. W. De Lacy, draughtsman.....		375 00
Fourth quarter. To William T. McFarland, clerk.....		247 50
Fourth quarter. To Henry C. Meredith, chief clerk.....		450 00

4,797 50

## Cr.

1868.	
July 1. By balance .....	\$1,405 17
20. By appropriation as per act approved.....	3,000 00
1869.	
July 1. By balance expended over appropriations.....	392 33
	<u>4,797 50</u>

H.—Statement showing the condition of the appropriation for the salary of surveyor general of Montana, for the fiscal year ending June 30, 1869

## Dr.

1868.	
First quarter. To account as rendered.....	\$750 00
Second quarter. To account as rendered.....	750 00
Third quarter. To account as rendered.....	750 00
Fourth quarter. To account as rendered.....	750 00
	<u>3,000 00</u>

## Cr.

1868.	
July 20. By balance of appropriation.....	\$2,480 77
1869.	
July 1. By balance over appropriation.....	519 23
	<u>3,000 00</u>

I.—Statement showing the condition of the appropriation for incidental expenses of the office of surveyor general of Montana, for the fiscal year ending June 30, 1869.

## Dr.

1868.		
October 1.	To Allen Lucas, messenger.....	\$150 00
	To Ferdinand Wassweiler, fuel.....	200 00
	To David A. Bentley, rent.....	337 50
	To S. Meredith, incidentals.....	28 50
	To Cole Saunders, stationery.....	147 50
1869.		
January 1.	To Allen Lucas, messenger.....	150 00
	King & Gillette, rent.....	337 50
	To S. Meredith, post office box rent.....	14 00
	To Cole Saunders, stationery.....	35 00
April 1.	To King & Gillette, rent.....	337 50
	To Allen Lucas, messenger.....	150 00
	To S. Meredith, post office box rent.....	22 50
July 1.	To S. Meredith, post office box rent.....	12 43
	To King & Gillette, rent.....	337 50
		<hr/>
		2,259 93

## Cr.

1868.	
July 1. By balance .....	\$48 65
20. By appropriation as per act approved.....	1,000 00
1869.	
July 1. By balance of expenditures over appropriations.....	1,211 28
	<u>2,259 93</u>

*J.—Statement as called for by circular of July 24, 1869.*

Number of acres of agricultural land and comparative areas of agricultural and mineral lands:

Agricultural land.....	23, 000, 000
Mineral land.....	9, 200, 000
Number of acres of grazing land.....	69, 000, 000
Number of acres covered by private claims.....	None.
Number of acres of reclaimable swamp lands.....	None.
Number of acres of sterile land, that may be reclaimed by irrigation or by other means.....	23, 000, 000
Number of acres broken by mountain ranges.....	46, 008, 320
Number of acres of timber land.....	11, 502, 320
Number of cities and towns.....	63
Aggregate length of railroads completed, in progress of construction, and projected:	
Projected miles of Northern Pacific.....	740

*K.—Statement called for by circular of July 2, 1869, showing the material resources, &c., of Montana, for the fiscal year ending June 30, 1869.*

Annual aggregate of values of agriculture, mining, &c.:

Wheat.....	\$900, 000
Barley and oats.....	500, 000
Potatoes.....	1, 300, 000
Hay.....	200, 000
Cattle.....	450, 000
Vegetables.....	75, 000
Poultry and eggs.....	100, 000
Butter, cheese, and milk.....	400, 000
Lumber.....	300, 000
	3, 925, 000
Gold.....	10, 000, 000
	13, 925, 000

Annual aggregate of secondary values added to raw material by chemical and mechanical processes.....

None.

Annual aggregate of profit on capital invested in merchandising.....

\$2, 500, 000

Annual aggregate profit on capital invested in banking, brokerage, &c.....

200, 000

Annual aggregate profit on capital loaned to the government, counties, towns, &c.....

20, 000

Annual aggregate profit of capital invested in public transportation by land, lake, sea, or river.....

400, 000

Aggregate annual compensation of clerks, messengers, &c.....

1, 064, 000

Aggregate annual income of lawyers, physicians, and clergymen.....

180, 000

Aggregate of annual wages paid to domestic servants of all kinds.....

50, 000

*No. 18 M.—Annual report of the surveyor general of California and Arizona.*

UNITED STATES SURVEYOR GENERAL'S OFFICE,

San Francisco, August 24, 1869.

SIR: In compliance with the instructions from the department, I herewith submit my annual report, in duplicate, in reference to the surveys executed in the State of California and Territory of Arizona and other operations of this office, during the year ending June 30, 1869.

I also forward tabular statements of the business pertaining to this surveying district, to accompany the report, as follows:

A.—Statement of contracts for surveys of public lands during the year ending 30th June, 1869, payable out of the appropriations for that year.

B.—Statement of contracts for surveys of public lands during the same fiscal year, payable out of special deposits made with United States assistant treasurer in San Francisco, under section 10 of act of May 30, 1862.



C.—Statement of surveys of town sites in California, in conformity with the law of March 2, 1867, and amendments of June 8, 1868, payable out of special deposits.

D.—Statement of surveys of mines in California during the year ending June 30, 1869, in conformity with the law of 26th July, 1866.

E.—Statement showing the number of miles surveyed in California and Arizona up to June 30, 1869.

F.—Account of appropriations for surveys of public lands to June 30, 1869.

G.—Account of special deposits with the United States assistant treasurer for the survey of public lands, town sites, and mining claims, up to June 30, 1869, under the acts of Congress of May 30, 1862, March 2, 1867, and July 26, 1866.

H.—Account of appropriation for pay of surveyor general of California and Arizona.

I.—Account of appropriation for pay of clerks and draughtsmen in the office of surveyor general of California and Arizona for the fiscal year 1868-'69.

J.—Account of appropriations for rent of office and other incidental expenses for the year ending June 30, 1869.

K.—Statement of transcripts of field-notes of public surveys sent to the department at Washington during the year ending June 30, 1869.

L.—Statement of decrees of court, descriptive notes, &c., relative to private land claims, to accompany plats for patent, compiled for transmission to the department 1868-'69.

M.—Statement of plats made in office in 1868-'69.

N.—List of lands surveyed in California and Arizona in 1868-'69.

O.—Estimates for the surveying service in California and Arizona, for the fiscal year ending June 30, 1871.

P.—Account of deposits for surveys of private land claims.

In my report for last year I enumerated the various duties in which the employes of this office had been engaged. Referring to that report, I will merely say here that the same duties have been performed by them this year, except during the last quarter, when there were no appropriations, and some of the clerks and draughtsmen were off duty, and others working on private account.

The estimates for the surveying service during the coming year are based upon the fact that a large immigration, seeking for public lands, will probably come by the Pacific railroad. Both the northern and southern railroads will be pushing forward their respective lines. Settlers will be crowding in, in anticipation of the railroad locations. The mineral regions must also be subdivided, and cannot all be completed this year. There will be some large bodies of timber land which it is desirable to have surveyed for the purpose of subjecting them to the control and protection of the law. In proportion as the private claims are settled, the surveys will be needed of the public lands around them.

In considering the estimates for office work, and for rent, messenger, and incidental expenses, several important facts should be kept in view which are usually forgotten.

1. The area of California is more than three times that of Wisconsin or Illinois.

2. To its surveying service is added that of Arizona.

3. In addition to the surveys of the public lands, the office is charged with the surveys of private land claims, which are in number more than eight hundred, and occupy an immense area. This department of the surveying service is almost wholly unknown to the offices in the younger northwestern States.

4. The custody of the archives of these land titles is committed to this office, together with the official plats of their final surveys, one of the most important trusts of that kind in the United States. This duty of itself requires a clerk, who makes that a specialty, and also requires an extra room with suitable accommodations.

5. Besides the archives of private claims, the immense number of township plats and field-notes of the public land surveys of so large a State demand a corresponding amount of room and clerical attention. Even if no new field work were to be done, it would occupy the attention of three clerks to watch over, take down and put up, and keep in order, the private claim archives, the plats of both private claims and public lands, and the field-notes of both, and of the mining surveys also, and to make the necessary conversational explanations to the public, demanding access to these important documents in a time of active demand for lands for settlement and speculation.

One other general clerk is also needed to relieve the surveyor general of ordinary commonplace correspondence and routine management, and to oversee the book-keeping and copying of the other clerks. In addition thereto, three competent draughtsmen, often four, are needed to keep the office up to a proper standard of efficiency and punctuality. These draughtsmen must be also mathematicians, and trained to this particular kind of work. In regard to rent it should be remembered that the office requires much room for reasons specified above. Some of the rooms must be private, and some large and public. The office must necessarily be in the commercial metropolis of the State, in the central part of a large city, where rent is dear. The office at present occupied is quite unsuitable for the needs of the service; and the amount allowed for rent will not secure a proper suite of rooms elsewhere. Lest it should be

thought, with the aids and accommodations specified above, the surveyor general might himself have too much leisure, it may be well to see what is left for him to do. His first and legitimate duty is to supervise the extensive labors above enumerated, of the clerks and draughtsmen, and the deputy surveyors; and to make and receive such explanations of his business as the department and the public may properly demand.

But in addition thereto, his labors here in California have been doubled, or more, by various provisions of laws passed within the last five years. I refer to the laws of July 1, 1864, July 23, 1866, and the law relating to mining surveys of July 26, 1866. By one of these laws, he is charged with the duty of investigating and rendering a written opinion on the complicated questions of the conflicting boundaries of Mexican grants. Even where no conflict exists, he must make up an opinion concerning the correctness of the survey. The questions which arise out of one case often require the examination of papers on file in several neighboring cases, and a study of instructions and precedents equal to that devolving upon an attorney or a judge.

Another law (section 4 of act 23d July, 1866) requires the surveyor general to examine witnesses in cases of conflict between the State and federal authorities in relation to the segregation of swamp and overflowed lands. This duty requires traveling to different localities and absence from the office for several days at a time, voluminous piles of written testimony are to be reviewed, and a written opinion to be sent to the department. These lands exist in large bodies throughout a length of over four hundred miles between Shasta and the head of the Tulare valley.

These two classes of duty alone, with the writing, the correspondence, the solitary study, the traveling, and necessary conversations connected with the questions, are enough to tax the physical and mental powers of one man to the utmost, to say nothing of the usual labors devolving upon officers of this kind. These new duties require the *personal* attention of the surveyor general, and cannot be devolved upon another. For this increase of personal labor no increase of compensation has been provided.

But if instead of sufficient experienced clerical aid for the performance of the ordinary duties that aid is curtailed more than one-half, and the supervising officer is thus himself charged with clerical duty, it is plain that some branches of his work must be neglected and fall in arrears; somebody's land titles, patents, and domestic improvements, will be delayed by the non-performance of work in this office, and the general improvement of the State will be retarded.

Much more dispatch would be attained in sending up papers for patent if the surveyor general were relieved from this *quasi* judicial duty of rendering an opinion in writing on each survey of a private land claim. His duties properly are executive. To survey the lines and give their courses and distances and adjoining topography, to make the plats, copy the field-notes, advertise the survey, and copy the papers filed in the case, are all matters of mechanical work, in which "many hands make light work."

If one clerk cannot get it ready in time, two can. But to make up and write out an opinion in a case which involves the giving or taking of thousands of acres of valuable land, and in which the decision may effect fundamental questions of vested rights, long possession, and the construction of decrees, is not a matter that can be handed over to a clerk with an order to "do this, and he doeth it." It cannot be done amid the hurry of daily office work and talk. It requires solitude and a careful research among papers and maps in several different cases reciprocally affecting each other, and the examination of legal precedents and special instructions—all of which takes time, and usually, in this office, night time.

The surveys of public lands during the past year have been scattered in different parts of the State.

The Mendocino Indian reservation, a tract of twenty-five thousand acres, fronting on the ocean between the third and fourth standard parallels north, was subdivided under a special act of Congress providing for its sale as public land; and the plats thereof, having been approved by the department, have been transmitted to the register. Several townships of timbered lands in Humboldt and Mendocino Counties have been subdivided.

Some parts of the townships in Mendocino County were found to interfere with the lines of a Mexican title still before the supreme court, and the contract for further subdivision there was suspended.

Contracts were let early in the spring for the subdivision of nineteen townships, or fractional townships, in Tehama and Shasta Counties, between the fifth and seventh parallels north, the returns of which are not yet in. These lands will fall within the Oregon and California railroad belt.

Three additional townships have been subdivided within the limits of the Central Pacific railroad, and only a few more now remain to be surveyed within those limits.

The lands formerly claimed by the ex-mission of San Gabriel near Los Angeles, and by the ex-mission San Luis Rey, in San Diego County, have been subdivided as public land, and the plats will soon be returned to the register's office, where parties claiming to have purchased and possessed them in good faith under the now rejected mission

title, as well as those who hold by other acts of possession, can prove up their respective rights to pre-emption.

Several isolated townships and fractional townships have been subdivided at the expense of the settlers and others, by means of private deposits, in conformity with the tenth section of the act of May 30, 1832. This law is of great benefit to settlers in the narrow valleys that lie between ranges and spurs of rugged, unsurveyable mountain land.

During the last autumn and winter I held back from extensive letting of contracts elsewhere, with the expectation that possibly there might be a change in the route of the Southern Pacific railroad, which would call for subdivision surveys in the hilly regions south of the second parallel south. No such change has thus far been made, although several experimental lines have been run by the engineers of the road. Some of the lands in that region have been let for subdivision which might fall within the belt of the railroad. Quite a number of townships in the hills between the third and fifth standards south are more or less within the doubtful country affected by the McGarrahan claim.

Of the mineral lands only two townships were subdivided last year, both in Nevada County. The surveys of the mineral lands have brought into practical issue before the local land offices the respective claims of the agricultural and horticultural claimants on one side, and the mining claimants on the other. Some bitterness of feeling has been developed, but in the end permanent and unquestioned titles will result from these issues.

I am now letting a series of contracts extending along the mining foot-hills extending from Mariposa County to Shasta, for the purpose of enabling the agriculturists of those regions to secure permanent titles to their homes, and to enable the deputy surveyors to locate the surveys of mining claims, with reference to the subdivision lines of the public lands.

A contract has been taken to subdivide the foot-hills lying south of the Merced River, and west and south of the Mariposa rancho. Another has been taken for the subdivision of lands between the Stanislaus and Calaveras Rivers, comprising the copper mining region. Continuing still further northwest, two other contracts have been let for subdividing the mineral lands of Amador County, east of Ione Valley, and reaching up into the southern portion of El Dorado County, comprising many rich gold mines, and some of copper.

These surveys will cover some of the best vineyard land in the State, and many small valleys and rolling hills, capable of cultivation with wheat or barley, covered with scattered groves of oak or nut pine, and well adapted for dairy farms, gardens, orchards, and the raising of cattle, sheep, and hogs. A colony of Japanese has lately entered upon lands of this class in El Dorado County for the purpose of making silk, and, perhaps, of raising the tea plant. And I doubt not that in a few years the wheat and barley mines, the potato mines, the grape mines, the peach, plum, and pear mines, the olive oil mines, the butter and cheese mines, and the silk mines, will be found to be paying better dividends than the mines of gold and copper of the same region. Nevertheless they can both go hand in hand to help each other if sound titles attract labor and capital.

Two contracts have been let for townshipping and subdividing among the valleys of Plumas County, comprising also some timber lands. Two contracts have been let among the table lands of San Luis Obispo County, which are principally adapted for grazing purposes. Two fractional townships have also been let for subdivision, south of San Diego, adjoining one boundary line and the ocean.

Much public land in Santa Barbara, Los Angeles, and San Diego Counties, is kept back from subdivision, by the uncertainties of unsettled boundaries of Mexican private claims. The 8th section of the act of 23d July, 1866, has wrought much good by forcing claimants to come forward and ask for surveys. But there is still needed some legislation to restrict claimants within the limits of eleven leagues, beyond which the old colonial governors had no right to grant. The supreme court has repeatedly passed upon this point, but claimants persist in asking for wider boundaries, under pretense of judicial possession, the calls for boundaries, &c. Until the final confirmation, the surveyor general has no power that I know of to determine the location of a grant.

The claim of the ex-mission San Fernando, as confirmed by the southern district court, and by the supreme court, contains  $116,858\frac{46}{100}$  acres, or about twenty-six and one-third leagues. In other cases when eleven leagues have already been surveyed the claimants ask for wider boundaries.

In case of the grant of Los Prietos or Najalayequa, confirmed by special legislation of Congress, the claimants ask for  $208,742\frac{1}{2}$  acres, or about forty-seven square leagues. That survey was sent up to the Commissioner by my predecessor without approval. In the northern part of the State bordering on the ocean a tract of forty and one-half square leagues is claimed under a title which is still before the supreme court on appeal.

The decision of the United States Supreme Court in the case of the United States vs. Sepulveda (1 Wallace, 104) made it necessary, under orders from the Commissioner, to re-advertise and re-open for adjudication, under the law of July 1, 1864, all such plats



of surveys as had been approved by the former surveyor generals previous to the passage of the law of June 14, 1860, and which, before that decision, had been advertised under the law of 1860, and were supposed by its provisions to have become final.

As lands had in the meantime augmented in value from one hundred to two hundred per cent. or more, there were some of these cases in which the claimants have protested against the old surveys, and asked for more land or a change of location.

This could not be granted without in some cases encroaching upon settlers in good faith, and the result has not tended much "to quiet land titles." All blood has been stirred up between settlers and claimants under grants, and not only much labor, but much undeserved obloquy has been thrown upon this office. The action of this office must always be subordinate to the decisions of the Supreme Court.

There are large bodies of land in the northern part of the State, and some also in the southern part, over which neither standard, township, nor section lines have yet been established. Within these larger bodies there are smaller tracts in secluded valleys, which it is desirable to offer for settlement; but to a very considerable extent these regions consist of dense forests, or rugged and impassable mountains, unfit for cultivation, and cut up by steep cañons covered with impenetrable thickets of chapparal. The uniform rates per mile to which the deputy surveyors are restricted by law do not yet tempt them to take contracts for running even the standard lines in these regions. It has been necessary, therefore, to get access to the valleys by means of offset or traverse lines, run through narrow valleys or river cañons.

The larger bodies of broad prairies and open, rolling hills, have been subdivided; and future surveying contracts must necessarily be for rolling hills partially timbered, or for rougher timbered lands, or for smaller valleys.

#### SURVEYS IN ARIZONA.

Under my predecessor, contracts had been let for establishing the Gila and Salt River meridian in Arizona, establishing township and range lines, and subdividing several townships in the valley of the Gila and Salt Rivers.

These contracts were satisfactorily completed during the autumn of 1868, and the official plats and field-notes thereof have been returned to the General Land Office. The plats for the register of the land office in that Territory are not yet ready.

The Governor of that Territory having recommended for survey that portion of the valley of the Gila lying east of the Pima reservation, and also the country around Tucson, a deputy was dispatched, in March, to survey the exterior boundaries of and subdivide several townships in those localities; the amount of his work being limited by the \$5,000 appropriated for that fiscal year. The field-notes for a part of this work have been returned, and the remainder is nearly completed.

The same deputy was authorized to complete some unfinished work at Fort Yuma, in order to connect the military reservation there with the lines of public land surveys, but at the fort he learned that some changes had been made in the lines by the commanding officer, which made it necessary for him to wait for further instructions.

The balance of appropriations for surveys in Arizona, of \$7,500, which remained over from the year 1867-'68, was consumed in paying for the work contracted for under my predecessor.

A new contract to the amount of the \$5,000 appropriated for the current year will be let as soon as authentic information can be obtained as to the locality most needing it.

#### SURVEYS OF MINES.

The claimants of mines have not been as eager as might have been expected to avail themselves of the provisions of the act of July 26, 1866. The table appended to this report shows that the surveys of eight mines have been completed during the past year, and twenty during the previous year.

The law and its accompanying instructions were not at first well understood by the various officers charged with its execution, but by means of successive blunders and corrections, the work is now better understood, and the code of practice more simplified.

A survey which at first was not fully completed in several months can now be properly done in a few weeks, after the necessary term of posting and advertising has been completed. Owners of unproductive mines have hesitated to incur the expense of counsel fees, surveys, platting, advertising, and fees of the register's office. The expense of survey and office work, as estimated by this office, has usually been from \$60 to \$110 for each mine, where no unusual distance had to be surveyed to connect with the public land surveys. The advertising has been reported at from \$20 to \$45, usually about \$25. What the register's fees are I have no means of knowing. They must depend somewhat upon the amount of opposition. Counsel fees are, of course, irregular and under no official control, and must depend much upon the value of the mine, as well as the extent of the opposition.

A few of the richest mines in Nevada County have been surveyed, but there are still several most valuable mines in that and other parts of the State which have made no application for survey. Several quicksilver mines will be found in the list of surveys.

There are also some gold-bearing gravel claims on the list. This office has understood that such mines were entitled to a survey under the law, whenever their limiting walls of earth or rock were so well defined as to admit of accurate measurement and unmistakable tracing of their course and outcrop. It has been suggested, however, that this class of mines should more properly be segregated by what are known as "square locations"—that is, by lots with rectangular boundaries on the surface, and holding title underground only within planes depending perpendicularly from the surface lines.

To apply to them the rule of veins, giving to the owner of an outcrop of gravel, dipping at a very flat inclination, the privilege of following that particular "vein" of gravel or "cement," "with all its spurs, dips, angles, and variations," would seem to confer upon one man, holding two hundred feet on an outcrop, the privilege of running an indefinite length into the country on the plea of following the "dip" of his vein, or, more properly, "lead" of gravel. Square locations, in such cases, give less chance of monopoly. The same principle is also applicable to ores, which often occur in irregular deposits and "bunches," such as those of cinnabar, in some mines, and occasionally of copper and silver.

An amendment is needed to the mining law to prevent one mine from appropriating the name of another mine in the same locality. An attempt to do this was made under this law within my own observation. A rich mine made no application for a patent; another mine of little value, alongside of it, assumed the precise name of the richer mine, and filed its diagram at the land office, both deriving their names from the hill in which they were situated. Opposition was made; but if the poorer mine had reached a patent, it would have gone into the stock market with a reputation not justified by its poverty.

The mining interest of the State has not fallen off in its total product, but the character of its investments has gradually changed from that of placer mines, speedily exhaustible, to quartz, gravel, and hydraulic mines, demanding machinery, skilled labor, a well-ordered system of management, and permanent investment of large capital. To the holders of this capital the patents from the government, under the mining law of July 26, 1866, give a confidence not enjoyed under the local mining laws.

The quicksilver product is greatly diminished. It is not half what it was four years since.

The copper interest is asleep, awaiting the construction of railroads, the establishment of proper reduction works at the mines, cheaper labor, and the settlement of litigated claims.

Several mines of manganese are opened in various parts, and one of plumbago, but both these products are of slow and limited sale.

A complaint has been made verbally at this office, by a party claiming a manganese mine, which he values at \$1,000, that some person has deprived him of it by proving up a pre-emption claim to the quarter section of public land in which it lies. The act of July 26, 1866, makes no provision for mines of manganese, plumbago, or iron.

A new metal appears in the market this year. A tin mine (formerly known as "the Tenescal") has been successfully opened on the rancho "Sobrante de San Jacinto," in San Bernadino County. About one and a half tons of the unconcentrated ore as it came from the mine were reduced in San Francisco, and are said to have yielded about thirty per cent. of metal.

Some twenty tons of the ore have been brought to San Francisco, on its way to England for reduction. Several large pigs of the pure metal are piled in the office of the company at San Francisco. The quality is said to be first-rate, and the price in this market is about forty cents per pound.

The mine is opened about one hundred feet deep and from two hundred and seventy-five to three hundred feet in length.

The percentage of the crude ores varies from three to eighteen per cent. The managers estimate that they have in sight ready for stamping about 3,500 to 3,750 tons of ore; after extracting, stamping, and concentrating to sixty per cent. they expect to transport it to San Francisco for reduction.

#### SWAMP AND OVERFLOWED LANDS.

Under the fourth section of the act of July 23, 1866, requiring that, in cases where "the authorities of said State shall claim as swamp and overflowed any land not represented as such on the map, or in the returns of the surveyors, the character of such land at the date of the grant September 28, 1850, and the right to the same, shall be determined by testimony to be taken before the surveyor general, who shall decide the same, subject to the approval of the Commissioner of the General Land Office," I have, in company with the State surveyor general, Hon. J. W. Bost, (who is authorized to attend,) held public examinations of witnesses in Stockton at three different sessions of from three to four days each.

On the Mokelumne River, in township four north, range five east, (Mount Diablo meridian,) I have made a personal examination of the land in controversy. This case involves not alone the class of lands referred to in the section of the law cited above, but also a question of suspected dereliction of duty on the part of the United States deputy surveyor. At the expense of the parties interested, a series of instrumental levelings was taken in the Mokelumne River case, and also in those near Stockton.

At Colusa I made a personal examination of the lands during two days, and a public examination of witnesses during two or three days; and at Knight's Landing a personal examination of the land and public examination of witnesses during three days.

I have taken some testimony in San Francisco, and have personally examined two townships and part of another, not yet subdivided, near Sacramento, but claimed to be extensively overflowed.

For want of time and of some additional testimony to be taken, most of the cases have not yet been sent up to the Commissioner, but I expect to send them in a few weeks. In the case near Colusa there was also included a question of suspected collusion on the part of the United States deputy, but no evidence of a criminal intent was developed by the testimony. In most of the cases the overflows have been chargeable to the tributaries of the larger rivers; in some cases to both the larger and smaller rivers. In several townships below Sacramento the dispute is over lands directly bordering on the Sacramento River and its sloughs, and is intimately related to the general system of engineering for reclaiming the swamps of that river.

In two cases, in different sections of the State, besides the levees and drains, we have found artificial improvements for *irrigating* the same lands claimed as swamp and overflowed—a sort of combination that would exist rarely in any other country than California.

Although these examinations have taken me much away from the office, they have afforded to me a rare opportunity of observing not only the lands immediately in dispute, but also the general facts which must be taken into consideration in devising any efficient plan for reclaiming these lands on a large scale, by substantial and permanent structures. The lands are of unquestionable fertility, and of immense extent and importance to the State.

I regret that the means at the disposal of this office will not admit the construction of a series of large maps, showing the exact area both of the disputed and undisputed swamp lands throughout the whole State.

During the past year public attention has been directed toward the reclamation of these lands indisputably swamp and overflowed, which lie at and above the mouths of the Sacramento and San Joaquin Rivers, within the influence of the tides, but liable to overflow mainly by fresh-water floods. Sherman Island, containing fourteen thousand acres at the common delta of the two rivers, has been nearly all leveed against ordinary floods. The levees are of moderate dimensions, with a ditch on the inside for the absorption of seepage. Much of the reclaimed area has been cultivated with success to such an extent as to demonstrate the practicability of reclaiming the neighboring islands.

Homes, orchards, vineyards, wheat fields, and grass fields, have been established where only "tules" grew before.

I saw on this island a field of "tules" now six feet high, which formerly in two dry seasons had produced crops of wheat averaging forty and sixty bushels per acre respectively; and this with imperfect embankments only at the upper end, leaving the lower end open to the floods.

In subsequent wet seasons, the levees, being incomplete, admitted the water from below, and the "tules" again occupied the land. This shows why the testimony relating to these lands should be extended over an average of seasons, and not be confined either to one dry or to one wet year.

A company of capitalists has lately been formed to reclaim several large islands in both rivers, extending up each river twelve or fifteen miles. One other large association is making examinations about Knight's Landing and Colusa, with a view to reclamation under a distinguished military engineer. And along both rivers nearly to their issues from the hill country the swamp lands have been purchased from the State, and local and isolated works of reclamation are in progress; but no general system has been organized.

#### AGRICULTURAL PROGRESS.

During the last three years inquiry for the purchase of public lands has been greatly stimulated by several causes, as the increased lists of public sales will show.

The opening of the Pacific railroad has added to the demand until it has assumed the form of an excitement.

A few energetic farmers in the center of the agricultural counties had observed that the grain sown in February and March, toward the close of the rainy season, yielded usually but half a crop, often in a dry year barely producing a crop of hay, and sometimes being blighted entirely. The grain which had received the rains of the entire



winter, on the contrary, produced satisfactory crops. Dry uplands offered no rewards to that system of farming. Starting from these premises, a few shrewd farmers, cautiously at first, tried summer fallowing, and sowing all the field at the first rains. The growth through the winter was luxuriant and uniform; the ground was fully covered and shaded from the sun and winds of March and April, and the crop was abundant.

The same men quadrupled their summer fallowing the next season; capital took strong hold of the work, and the news of success spread throughout the dry-land farmers. Summer fallowing is now the rule, not the exception.

At about the same time some shrewd land-scrip speculators from the east observed the abundant crops of wild grasses which nature produced every year upon the dry rolling lands of the San Joaquin Valley. They observed also that these lands, although for years offered for sale by the government, were neglected, or were used only as sheep pastures by the neighboring settlers, who grouped themselves around the springs of water.

Indeed, it had come to be well understood that a settler who had entered all the well-watered sections could enjoy a monopoly of the free cattle range on the adjoining public lands without paying for it, as no one else would take it up for want of water. The scrip speculator, uniting himself with a heavy shipper of grain, at once entered thousands of acres of these lands at the minimum price, got splendid crops of grain raised upon them, and has been selling them at from \$5 to \$15 per acre.

The flourishing settlement known as Paradise, in Stanislaus County, owes its origin to this speculation. A great many persons have been trying to "go and do likewise," and the result has been, that almost every available section of offered land has been entered. Nearly all the sixteenth and thirty-sixth sections belonging to the State have been taken at \$1 25 as far as surveyed, and the lien land and school land locations (five hundred thousand acres) have also been absorbed to a great extent. A large amount of Sioux scrip, and university scrip of other States, has been made available in payment for these lands. Indeed, in entering land under the laws, I am told, I know not how truly, that the attorney of a Sioux Indian enjoys a marked pre-eminence over the soldier who has fought his country's battles, and sometimes over the actual occupant of many years' improvements, who may have been a little ignorant or careless about "proving up."

The cessation of the practice of offering the public lands for sale by private entry has given to the seekers of pre-emption and homestead locations a much better chance at the unsurveyed and newly surveyed lands. Several subdivisional surveys on special deposits have been made to accommodate this class of settlers in the secluded valleys.

Dairy farming is rapidly increasing among the valleys along the coast, where the grasses are kept fresh and green by the moisture from the ocean.

Much more attention than formerly has been directed to the farming and grazing lands in the southern part of the State.

Wealthy gentlemen are establishing plantations of the olive, English walnut, almond, and filbert, and of new varieties of grapes, currants, lemons, and oranges. Tea, sumac, and madder, will probably soon follow.

The mulberry, for silk, is also extensively planted, under the stimulus of a premium from the State. The people of the State have, during the last five years, directed their energies toward the establishment of permanent homes, and with what success the census of the coming year will testify.

#### STATE UNIVERSITY.

Congress granted to this State 150,000 acres of the public lands as an endowment for a college of "Agriculture and the Mechanic Arts." The State has added thereto a college of mines, another of civil engineering, and a college of letters.

Colleges of medicine, law, &c., are to follow as fast as the board of regents may find it expedient to establish them. This group of colleges constitutes the "University of the State of California." It is not only endowed with the proceeds of the 150,000 acres of public land, belonging more especially to the agricultural and mechanical departments, but the College of California has generously donated a splendid site of one hundred and sixty acres of land, valued at \$80,000, and has sold to it forty acres more, worth one thousand dollars per acre, at half that price. The State has also endowed it with what are known as the seminary and public building funds, valued at \$100,000, and a share, valued at \$200,000, of the tide-land sales.

The site occupies a beautiful and fertile slope about five miles north of Oakland and ten from San Francisco, looking out toward the west upon the bay and its islands, the city, the Golden Gate, and the magnificent frame-work of mountains which incloses them.

Permanent buildings are soon to be erected, and in the mean time the institution will commence its course of instruction on the 23d September in the building in Oakland lately occupied by the College of California. Eight accomplished scholars, selected from among the most eminent in various parts of the Union, are elected professors.

In order that the university might lack no necessary facility in the entry and location

of its lands, Congress has wisely provided that the entries might be made at the land office as soon as the plats of subdivision are filed at the register's office. This privilege has enabled the regents to dispose of a large amount of their land scrips at five dollars (gold) per acre.

Over thirty-two thousand acres have been disposed of at this price. A portion of the lands, nine thousand two hundred and eighty acres, had been sold at one dollar and twenty-five cents before the regents had control of them. Three gentlemen have been appointed to locate the remainder of the lands on account of the university, but in the mean time the regents continue to sell the right of location at five dollars per acre. If it all realizes this price, or near to it, and I see no reason why it should not, there will be established a fund of about \$700,000, which, united to the funds mentioned above, will make the total endowment of the institution \$1,100,000.

#### RAILROADS.

The great national event of uniting the rails of the two Pacific railroads took place on the 10th of May at Promontory Point, in the State of Nevada, with appropriate ceremonies too widely known to need description here. The Central Pacific Railroad Company, having completed its line within this State early last year, has been adding to it more permanent bridges, engine houses, machine shops, station houses, founderies, car factories, and wharves. The company constructs its own freight cars, and, if necessary, passenger cars, in its workshops at Sacramento.

The managers of the Central Pacific company have also control of the Western Pacific railroad from Sacramento to San José, one hundred and twenty miles, with a branch to Oakland of twenty-two miles; and this branch to Oakland also has a temporary connection with the Alameda railroad of sixteen miles from the end of a long wharf in the Bay of San Francisco to Hayward's, and with the Oakland railroad of four and a half miles from the end of a similar wharf to San Antonio.

Both these latter roads are connected with ferries to San Francisco.

The managers of the Central Pacific company also control the California and Oregon road within this State. Connected with this is the California Central road from Roseville on the Central Pacific to Marysville, thirty-four miles, which has lately been completed.

They also control the Sacramento Valley railroad from Sacramento to Folsom, twenty-two miles, with a short connecting link of eight miles, between Folsom and Roseville. Connecting with the road at Folsom, but belonging to another company, is the Placerville and Sacramento Valley railroad, completed twenty-four miles to Shingle Springs, within eleven miles of Placerville. It is expected that the remainder will soon be completed.

The railroad from Marysville to Oroville, twenty-six and a half miles, has been in use for several years. It is nearly on the route of the Oregon railroad, but has not yet been united with it. It may possibly form a portion of another system.

The California Pacific railroad is completed from Sacramento to Vallejo, sixty miles. A branch of this road is nearly completed from Davisville to Woodland and Knight's Landing, nineteen and a half miles, where it will cross the Sacramento River and run to Marysville, twenty-four miles further, connecting probably with the Oroville road.

From a point (Adelante) on the California Pacific, the Napa Valley railroad is completed thirty-five miles to Calistoga, a place famous for its hot springs.

The San Francisco and San José railroad, fifty miles, has been in use for several years. An extension of it has recently been opened for travel thirty miles to Gilroy, as a part of the Southern Pacific railroad. Its further extension south to the thirty-fifth parallel of latitude only awaits the decision of questions of location.

The Western Pacific road is now open from Sacramento to Stockton, forty-five miles, and from San José to Saddingville, about thirty-five miles. And by the middle of September the track is expected to be laid the whole distance.

A short railroad of twenty-five miles is nearly completed from Los Angeles to San Pedro, a roadstead on the coast where steamers can land cargo and passengers.

There are two railroads, each of about six miles, extending from the coal mines of Contra Costa County to the San Joaquin River; one landing at Pittsburg, and the other at "New York of the Pacific."

On the Mariposas estate there is a railroad of four miles for transporting the products of the Pine Tree and Josephine mines to the Benton Mills on the Merced River.

The city of San Francisco is supplied with a network of city railroads.

These are all the completed railroads in the State of which I have knowledge.

There is no lack of projected railroads. A road of thirty-eight miles was located some years since between Stockton and the copper mines of Copperopolis. A grant of land was made to it by Congress, and the grading has been done on eleven miles; but on account of the present depression of the copper interest the road has not been completed. It is essential to the success of those mines, and if extended further east would give convenient access to the gold regions and timber lands and "big tree" groves of

Calaveras County. Another road has been projected from Stockton to Visalia, passing through the rich wheat lands of Paradise. It would ultimately be united with the Southern Pacific road.

A route has been surveyed from Sancelito, near the entrance of San Francisco Bay, skirting the bay shore to Petaluma, and thence up the Russian River Valley, and crossing over through the forests of Mendocino County to Humboldt Bay. It would pass through a prosperous agricultural region, and open one of the most extensive forests of timber in the world. Roads to compete with this, or to drain it by connection, are projected from Vallejo to Sonoma and Santa Rosa, and from Calistoga to Healdsburg. Also, one of fifteen miles, from Santa Rosa to Bodega, on the coast.

Surveys have been made for a railroad from Oroville, through Beckworth's Pass, to Virginia City, in the State of Nevada. From the Pass, where it crosses our State line, it may also connect with the Union Pacific extension in the valley of the Humboldt River, thus forming a complete connection from Omaha to Vallejo. The surveys have been made on the California and Oregon road as far as Red Bluffs. The route beyond is not finally determined. A reconnaissance has been made to the boundary line.

A railroad is projected from Woodland to Red Bluff, by way of Colusa, or west of it.

A railroad has been projected, and some preliminary surveys have been made, from San Diego eastward to Fort Yuma, and thence to join the Southern Pacific Road at some point not yet determined. The expectation that this road must eventually become a part of a great system of roads across the southern frontier of the United States has given great prominence to the port of San Diego, and attracted thither a population eager for improvement and speculation.

A railroad has been projected as an extension of the California Pacific, to cross the Straits of Carquinez near Vallejo, and pass across the point of San Pablo, and thence across a shallow portion of the Bay of San Francisco to Goat Island. This is known as the "Terminal" railroad.

Another road is projected from Martinez, on the Straits of Carquinez, up through the San Ramon Valley to Amador Valley, and probably to join the Western Pacific railroad.

Much complaint is made of the ravages committed by unsettled men upon the valuable timber on the public lands. It has got to be understood among this class of men that there is no legal remedy against such ravages on unsurveyed land. I am not aware that this office has any jurisdiction in the matter.

I am, sir, with great respect, your obedient servant,

SHERMAN DAY,

*Surveyor General for California and Arizona.*

Hon. JOSEPH S. WILSON,

*Commissioner of the General Land Office.*



*A.—Statement of contracts entered into by the United States surveyor general for California and Arizona with deputy surveyors for surveys of public lands during the fiscal year ending June 30, 1869, and payable out of the public appropriations for that fiscal year.*

Date of contract.	Name of deputy.	Location of work.	Meridian.	Amount of contract.	Returned amount.	Remarks.
Oct. 1, 1867	N. Gray	Township 15 north, range 1 west; township 17 north, range 1 west; township 13 north, range 1 west; township 15 north, range 5 east; township 16 south, range 5 east; township 6 north, range 33 west; township 6 north, range 32 west; township 7 north, range 32 west;	Mt. Diablo	\$1,300 00	\$1,417 89	Some new work has been done.
July 31, 1868	S. W. Smith	Township 13 north, range 16 west; township 14 north, range 16 west; township 14 north, range 15 west; township 14 north, range 16 west; township 15 north, range 15 west; township 15 north, range 16 west;	Mt. Diablo	500 00	811 64	Work closed.
Sept. 13, 1868	G. H. Thompson	Township 14 north, range 16 west; township 15 north, range 16 west; township 14 north, range 14 west; township 16 north, range 15 east; township 14 north, range 8 east; township 15 north, range 8 east;	Mt. Diablo	900 00	.....	To close up lines around Santa Rosa rancho; survey not yet made.
Oct. 27, 1868	G. P. Ingalls	Township 13 north, range 15 west; township 13 north, range 16 west; township 13 north, range 15 west; township 14 north, range 16 west; township 14 north, range 15 west; township 15 north, range 15 west; township 15 north, range 16 west;	Mt. Diablo	4,000 00	1,865 17	Part of work stopped on account of Albion rancho.
Nov. 9, 1868	James G. Mather	Township 14 north, range 15 east; township 15 north, range 8 east; township 1 north, range 1 east; township 1 north, range 2 east; township 1 north, range 3 east; township 2 north, range 1 west; township 2 north, range 1 east; township 1 south, range 2 east; township 1 south, range 3 east; township 2 south, range 2 east; township 2 south, range 3 east; township 2 south, range 4 east; township 2 south, range 2 east; township 3 south, range 2 east;	Mt. Diablo	2,500 00	.....	Notes returned, but not all platted.
Dec. 17, 1868	John S. Murray	Township 10 south, range 3 west; township 11 south, range 4 west; township 11 south, range 5 west; township 25 north, range 3 west; township 27 north, range 4 west; township 27 north, range 5 west; township 28 north, range 4 west; township 28 north, range 5 west; township 29 north, range 3 west;	Humboldt	3,500 00	2,714 48	Part of work not yet done.
Mar. 18, 1869	Elben N. Dyer	Township 3 south, range 2 east;	Mt. Diablo	1,000 00	.....	Plats not made; suspended on account of Positas rancho.
April 2, 1869	James Pascoe	Township 10 south, range 3 west; township 11 south, range 4 west; township 11 south, range 5 west; township 25 north, range 3 west; township 27 north, range 4 west; township 27 north, range 5 west; township 28 north, range 4 west; township 28 north, range 5 west;	San Bernardino	2,100 00	.....	Not completed on 30th June.
April 23, 1869	William Magee	Township 29 north, range 3 west;	Mt. Diablo	5,000 00	.....	Work done; no returns on 30th June.

## A.—Statement of contracts entered into by the United States surveyor general for California and Arizona, &amp;c.—Continued.

Date of contract.	Name of deputy.	Location of work.	Meridian.	Amount of contract.	Returned amount.	Remarks.
April 28, 1869	Wm. Magee—Cont'd ..	township 29 north, range 4 west; township 30 north, range 2 west; township 30 north, range 3 west; township 30 north, range 4 west; township 30 north, range 5 west; township 31 north, range 4 west; township 31 north, range 5 west; township 32 north, range 4 west; township 32 north, range 5 west; township 32 north, range 4 west; township 32 north, range 5 west; township 31 north, range 1 east; township 31 north, range 2 east; township 32 north, range 1 east; township 33 north, range 2 east; Township 24 south, range 12 east; township 25 south, range 12 east; township 26 south, range 12 east; township 24 south, range 13 east; township 25 south, range 13 east; township 26 south, range 13 east. Township 3 north, range 6 west; also island in township 3 north, range 6 west.	Mt. Diablo.....	\$3,600 00	.....	Nearly done; no returns on 30th June.
May 19, 1869	Hubert C. Ward .....		Mt. Diablo.....	Special in	instructions.	Returned; but not platted.
Sept. 14, 1868	H. Austin .....					

SHERMAN DAY,  
United States Surveyor General for California and Arizona.

B.--Statement of contracts entered into by the United States surveyor general for California and Arizona with deputy surveyors for surveys of public lands during the fiscal year ending June 30, 1869, and payable out of private deposits, made in conformity with section 10 of the act approved May 30, 1862.

Date of contract.	Name of deputy.	Location of work.	Meridian.	Amount of contract.	Returned amount.	Depositors.	Remarks.
July 23, 1868	S. W. Smith	Township 11 south, range 3 east; township 12 south, range 3 east; township 11 south, range 4 east.	Mt. Diablo	\$225 00	\$140 32	J. P. Sargent	Closed.
Sept. 1, 1868	J. J. Underhill	Township 10 north, range 1 west; township 10 north, range 2 west.	Mt. Diablo	225 00		D. B. Inrlbut	Returned, but not platted.
Sept. 17, 1868	John D. Hoffman	Township 5 north, range 31 west; township 5 north, range 32 west.	San Bernardino	1, 074 00		William Pierce	No survey made; amount to be returned.
Oct. 12, 1868	W. S. Watson	Township 8 north, range 1 east	Humboldt	790 00	237 61	Hooper & Company	Closed.
Oct. 3, 1868	W. Magee	Township 23 north, range 2 west; township 33 north, range 6 west; township 33 north, range 7 west; township 32 north, range 6 west; township 32 north, range 7 west.	Mt. Diablo	885 00	642 34	N. Merrill, S. A. Gayle, Charles Camden.	Closed.
Nov. 27, 1868	J. Wallace	Township 5 south, range 8 east	Mt. Diablo	308 00	243 04	J. Vivian	Notes returned.
Nov. 30, 1868	J. C. Walker	Township 11 south, range 21 east	Mt. Diablo	325 00		J. A. Chapman	No returns.
Dec. 3, 1868	William P. Reynolds	Township 1 north, range 11 west; township 1 north, range 12 west; township 1 south, range 12 west.	San Bernardino	400 00		Volney E. Howard	Returned in part only.
Jan. 26, 1869	T. J. Dewoody	Township 7 north, range 6 west	Mt. Diablo	290 00	329 89	S. Alstrom.	
Feb. 4, 1869	John Reed	Township 7 north, range 5 west	Mt. Diablo	450 00	288 88	A. Badlam.	
		Township 23 south, range 20 east; township 23 south, range 21 east; township 30 south, range 22 east.	Mt. Diablo	430 00	863 19	W. S. Chapman.	
Feb. 10, 1869	John Reed	Township 8 south, range 3 west	Mt. Diablo	135 00	111 74	C. Grunee.	
Mar. 5, 1869	John Reed	Township 30 south, range 21 east	Mt. Diablo	850 00	696 95	H. Miller.	
Mar. 20, 1869	John Wallace	Township 2 south, range 6 east	Mt. Diablo	105 00	105 00		
April 1, 1869	William Isaac	Township 17 south, range 9 east	Mt. Diablo	300 00		Dr. E. F. Bailey	Returned, but not platted.
April 1, 1869	Robert E. Harris	Township 18 south, range 6 east	Mt. Diablo		274 15	F. San Junjo.	
		Township 19 south, range 6 east	Mt. Diablo		164 92	Christy & Wise.	
May 19, 1869	E. M. Morgan	Township 25 south, range 9 east	Mt. Diablo	535 00		E. O. F. Hastings	Not returned.
Aug. —, 1868	Robert E. Harris	Township 4 north, range 13 west	San Bernardino	400 00		P. Murphy, agent.	
		Township 29 south, range 12 east; township 29 south, range 13 east; township 30 south, range 14 east.	Mt. Diablo	165 00	217 86		
Jan. —, 1869	John M. Ingalls	Township 18 north, range 17 west	Mt. Diablo	100 00	141 46	A. W. McPherson, agt.	Supplementary surveys.

SHERMAN DAY,  
United States Surveyor General for California and Arizona.



C.—*Surveys of town sites in California under instructions of the surveyor general in conformity with the law of March 2, 1867, and amendments of June 8, 1868.*

Town.	Deputy surveyor.	Date of survey.	Township and range.	Meridian.	Estimate for survey and platting.	Returned cost of survey and plat.
Auburn.....	C. W. Finley .	Feb., 1869	Township 12 north, range 8 east.	Monte Diablo.	\$80 00	\$100 18
San Rafael.....	Hiram Austin.	June, 1869	Township 2 north, range 6 west.	.....Do.....	110 00	110 00

SHERMAN DAY,

*United States Surveyor General for California and Arizona.*

D.—*Statement of surveys of mines in California up to 30th June, 1869, in conformity with the law of 26th July, 1866.*

Name of mine.	Date of survey.	Description.	Location.
Clear Creek .....	Nov., 1866	Quicksilver .....	Monterey County.
Fourth of July .....	May, 1867	Do. ....	Do.
Boston .....	May, 1867	Do. ....	Do.
Peñon Blanco .....	May, 1867	Gold quartz .....	Tuolumne County.
Andy Johnson .....	June, 1867	Quicksilver .....	Monterey County.
McCann .....	June, 1867	Gold quartz .....	Tuolumne County.
Trio .....	June, 1867	Do. ....	Do.
New Idria .....	June, 1867	Quicksilver .....	Fresno County.
Hitchcock .....	July, 1867	Gold quartz .....	Tuolumne County.
Arbona .....	July, 1867	Do. ....	Do.
Grey Eagle .....	July, 1867	Do. ....	Do.
Oakes and Reese .....	Aug., 1867	Do. ....	Mariposa County.
Jones .....	Aug., 1867	Do. ....	Do.
Potts .....	Aug., 1867	Do. ....	Do.
Kelsey .....	Aug., 1867	Gold and silver .....	El Dorado County.
Schofield .....	Sept., 1867	Gold quartz .....	Nevada County.
Kelley .....	Sept., 1867	Do. ....	Tuolumne County.
Northern Light .....	Sept., 1867	Do. ....	Do.
Hansom .....	Nov., 1867	Do. ....	Yuba County.
Pittsburg .....	May, 1868	Quicksilver .....	Lake County.
Salathiel .....	Sept., 1868	Gold quartz .....	Nevada County.
Norridgewock .....	Sept., 1868	Do. ....	Do.
Idaho .....	Dec., 1868	Do. ....	Do.
Rising Sun .....	Dec., 1868	Do. ....	Placer County.
Conley and Gowell .....	Jan., 1869	Gold and cement .....	Plumas County.
Eureka .....	Mar., 1869	Gold quartz .....	Nevada County.
Pittsburg .....	Mar., 1869	Do. ....	Do.
Providence .....	Mar., 1869	Do. ....	Do.

SHERMAN DAY,

*United States Surveyor General for California and Arizona.*

E.—Statement of number of miles surveyed in California and Arizona to June 30, 1869.

Name of surveyor.	Date of contract.	Base.	Meridian.	Standard.	Traverse.	Meander.	Township.	Section.
		Miles. chs. lks.	Miles. chs. lks.	Miles. chs. lks.	Miles. chs. lks.	Miles. chs. lks.	Miles. chs. lks.	Miles. chs. lks.
Miles surveyed to June 30, 1868, as per last report.		330 60 57	698 39 49	4,334 39 47	2,755 59 34	701 65 34	22,611 65 12	85,198 11 65
George H. Perrin	Jan. 14, 1868						5 00 10	68 77 73
George P. Ingalls	Jan. 17, 1868						85 38 38	45 00 54
John M. Ingalls	Feb. 4, 1868		8 40 95	5 78 80		39 23 29	13 59 75	347 08 67
W. W. Skinner	Apr. 16, 1868					6 32 52		18 69 35
I. N. Chapman	Apr. 4, 1868					3 57 36		1 00 00
T. J. Dewoody	Mar. 27, 1867						13 50 15	49 65 78
T. J. Dewoody	July 7, 1867					1 42 58		27 73 05
T. J. Dewoody	Mar. 20, 1868						6 15 94	21 35 92
George H. Thompson	Sept. 1, 1868						1 17 17	
W. S. Watson	Oct. 12, 1868					18 53	2 09 30	19 79 82
R. R. Harris	Aug. 24, 1868					65 30	1 00 00	17 59 17
S. W. Smith	July 31, 1868						26 31 24	42 23 62
John Wallace	Nov. 27, 1868						1 60 00	8 24 62
S. W. Smith	July 23, 1868					9 21 15		14 02 55
John M. Ingalls	June 23, 1868							31 73 68
John M. Ingalls	Aug. 8, 1868						5 59 60	60 24 12
William Magree	Oct. 3, 1868						1 40 00	40 10 22
T. S. Towle	June 8, 1868					16 17 70	50 62 00	204 67 09
George P. Ingalls.	Oct. 27, 1868					9 43 05	37 73 15	129 67 88
Vitus Wackeunder.	June 2, 1868					3 67 16	4 57 20	21 61 46
John Reed	Feb. 4, 1869						15 02 20	157 16 74
R. R. Harris	Apr. 1, 1869					51 45	1 00 00	25 20 04
John M. Ingalls.	Jan. 15, 1869						1 37 65	12 31 17
Caswell W. Finley	Jan. 21, 1869							5 01 50
W. F. Ingalls	Feb. 18, 1868						137 44 78	553 64 64
G. P. Ingalls	Feb. 29, 1868						114 33 86	608 64 23
G. P. and W. F. Ingalls, (joint contract).	July 10, 1868	6 00 00		30 00 00			129 41 16	551 02 46
Total miles surveyed to June 30, 1869.		336 60 57	707 00 44	4,370 38 27	2,755 59 34	793 25 33	23,253 43 15	88,291 97 76

SHERMAN DAY,  
Surveyor General California and Arizona.

## F.—Statement of account of appropriation for the survey of public lands in California and Arizona during the fiscal year 1868—'69.

Date of account.	In favor of—	Amount.	Date.	On account of—	Amount.
Aug. 1, 1868	To amount paid E. Dyer, instructions of July 23, 1863, as per letter of Hon. Commissioner of Land Office, dated July 30, 1868.	\$787 20	July 1, 1868	By balance from last year.....	\$6,382 11
Aug. 11, 1868	To amount paid S. W. Foreman, contract of July 30, 1868.	238 10	July 30, 1868	Appropriation for surveys of public land in California.....	50,000 00
Aug. 1, 1868	To amount paid S. W. Foreman, contract of June 4, 1867.	101 19	July 30, 1868	Appropriation for surveys of public land in Arizona.....	5,000 00
Aug. 1, 1868	To amount paid S. W. Foreman, contract of Oct. 1, 1867.	756 11			
Aug. 1, 1868	To amount paid Henry Hancock, contract of Aug. 1, 1867.	153 68			
Aug. 1, 1868	To amount paid Henry Hancock, contract of Jan. 14, 1868.	288 17			
Aug. 4, 1868	To amount paid Nicholas Gray, contract of Oct. 1, 1867.	1,417 80			
Aug. 5, 1868	To amount paid W. F. Ingalls, contract of Jan. 20, 1866.	85 30			
Aug. 3, 1868	To amount paid E. Dyer, contract of Sept. 24, 1866.	610 24			
Aug. 3, 1868	To amount paid E. H. Dyer, contract of Sept. 3, 1867.	1,043 80			
Aug. 10, 1868	To amount paid E. Dyer, contract of Sept. 15, 1867.	1,808 98			
Dec. 3, 1868	To amount paid W. F. Ingalls, contract of Feb. 18, 1868.	7,488 80			
Jan. 11, 1869	To amount paid Geo. P. Ingalls, contract of Feb. 20, 1868.	7,461 09			
Feb. 19, 1869	To amount paid Jno. M. Ingalls, contract of Feb. 4, 1868.	5,232 09			
April 16, 1869	To amount paid Henry Hancock, contract of Sept. 9, 1867.	349 62			
April 16, 1869	To amount paid W. F. Ingalls, contract of July 10, 1868.	3,661 14			
Dec. 28, 1868	To amount paid S. W. Smith, contract of July 31, 1868.	811 64			
	To amount paid Geo. H. Thompson, contract of June 28, 1867.	55 80			
	Balance of appropriation carried forward to fiscal year of 1869—'70.....	29,021 27	July 1, 1869	By balance from last year.....	29,021 27
		61,382 11		Against this balance there will remain to be charged, when the accounts and plats are made up, about \$22,600, under the following contracts:	
				Geo. P. Ingalls, contract of October 27, 1868.	
				John S. Murray, contract of December 17, 1868.	
				J. G. Mather, contract of November 9, 1868.	
				E. Dyer, contract of March 18, 1869.	
				James Pascoe, contract of April 2, 1869.	
				Wm. Magee, contract of April 23, 1869.	
				Hubert C. Ward, contract of May 19, 1869.	
				Uran Austin, instructions September 14, 1868.	
				R. W. Norris, Arizona, February 23, 1869.	

SHERMAN DAY,  
United States Surveyor General for California and Arizona.



G.—Statement of special deposits for the survey of mining claims in California during the fiscal year 1868-'69.

Date of contract.	Names of deputies.	Names of depositors.	Amount of deposits.				Am't of account.	Location of work.
			Surveys.	Salaries.	Adv'g.	Total.		
Aug. 14, 1868		Rising Sun Quartz Mining Company.	\$35 00	\$25 00	.....	\$60 00	\$60 00	Rising Sun Quartz Mining Company.
Aug. 18, 1868	R. M. Wilson	Samuel Geddes, ag't	30 00	40 00	\$20 00	90 00	90 00	Inimitable Copper Mining Company.
Sept. 9, 1868	J. T. Stratton	James E. Perkins	35 00	25 00	25 00	85 00	85 00	Salathiel Quartz Mining Company.
Nov. 14, 1868		Idaho Quartz Mining Company	.....	.....	25 00	25 00	25 00	Idaho Quartz Mining Company.
Jan. 9, 1869		E. W. Hanson	.....	.....	24 00	24 00	24 00	Hanson Quicksilver Mining Company.
Jan. 26, 1869		J. Conley and O. Gorrell	40 00	65 00	40 00	145 00	145 00	Conley and Gorrell cement claims.
Mar. 2, 1869		W. B. Brown	45 00	65 00	25 00	135 00	135 00	Pittsburg Mining Company.
Mar. 11, 1869		John H. Reddington	45 00	65 00	45 00	155 00	155 00	X. L. C. R. Mining Company.
Mar. 17, 1869		Eureka Mining Company.	45 00	65 00	30 00	140 00	140 00	Eureka Mining Company.
Mar. 17, 1869		John Nash, ag't	.....	.....	25 00	25 00	25 00	Spring Valley.
Mar. 17, 1869		Auroral Star Mining Company.	45 00	65 00	25 00	135 00	135 00	Auroral Star Mining Company.
Mar. 3, 1869		F. F. Dingley	45 00	65 00	25 00	135 00	135 00	Providence mine.
Mar. 19, 1869		Washington Quicksilver Mining Co.	.....	.....	50 00	50 00	50 00	Washington Quicksilver mine.
	T. J. Dewoody		.....	.....	.....	.....	.....	

SHERMAN DAY,

United States Surveyor General for California and Arizona.

G 1.—Statement of special deposits for the survey of public lands in California and Arizona during the fiscal year 1868-69.

Names of deputies.	Names of depositors.	Date of deposit.	Amount of deposit.	Amount of account.	Location of work.	Remarks.
S. W. Smith .....	J. P. Sargent, agent.....	July 23, 1868	\$225 00	\$140 32	Township 11 S., range 3 E., M. D. M.; township 12 S., range 3 E., M. D. M.; township 11 S., range 4 E., M. D. M.; township 20 S., range 12 E.; township 29 S., range 13 E.; township 30 S., range 13 E.; and township 30 S., range 14 E., M. D. M.	
R. R. Harris .....	P. Murphy, agent.....	Aug. 24, 1868	145 00	217 86	Township 5 N., range 31 W., S. B. M.; township 5 N., range 32 W., S. B. M.	Wm. Pierce wants his money returned.
John D. Hoffman ..	Wm. Pierce .....	Sept. 18, 1868	1,074 00	.....	Township 8 N., range 1 E., Humboldt M.	
Wm. S. Watson.....	F. P. & J. H. Hooper, agts	Oct. 10, 1868	730 00	237 61	Township 5 S., range 8 E., M. D. M.	
John Wallace.....	J. Vivian, agent.....	Nov. 9, 1868	308 00	243 04	Township 11 S., range 21 E., M. D. M.	
J. C. Walker.....	J. A. Chapman.....	Nov. 23, 1868	325 00	.....	Township 1 S., range 12 W., and township 1 N., range 11 W., and township 1 N., range 12 W., S. B. M.	Map not made. Returned, but not all platted.
Wm. P. Reynolds ..	V. E. Howard, agent....	Dec. 3, 1868	400 00	.....	Township 10 N., range 6 W., M. D. M.	No returns.
T. J. Dewoody.....	J. P. Brandt, agent.....	Dec. 26, 1868	213 00	.....	Township 7 N., range 6 W., M. D. M.	
	S. Alstrom, agent.....	Dec. 30, 1868	290 00	929 89	Township 18 N., range 17 W., M. D. M.	
	A. W. McPherson, agent.	Jan. 12, 1869	100 00	141 46	For pay of surveys of sections set off to W. P. R. R.	
John Reed .....	Western Pacific R. R. Co.	Jan. 7, 1869	2,379 00	.....	Township 25 S., range 20 E., and township 29 S., range 21 E., and township 30 S., range 22 E., M. D. M.	
	W. S. Chapman .....	Feb. 4, 1869	430 00	863 19	Township 30 S., range 21 E., M. D. M.	
Do.....	H. Miller.....	Feb. 20, 1869	850 00	696 95	Township 8 S., range 3 W., M. D. M.	
Do.....	C. Gurnee, agent.....	Feb. 10, 1869	135 60	111 74	Township 2 S., range 6 E., M. D. M.	
J. Wallace.....	J. Wallace.....	Mar. 19, 1869	105 00	105 00	Township 25 S., range 9 E., M. D. M.	
R. R. Harris.....	Christy and Wise.....	April 2, 1869	224 40	164 92	Township 17 S., range 6 E., M. D. M.	Returned, not platted.
Wm. Isaacs.....	Dr. F. E. Bailey.....	April 2, 1869	290 00	.....	Township 18 S., range 6 E., and township 19 S., range 6 E., M. D. M.	
R. R. Harris.....	F. San Jugo.....	April 2, 1869	355 00	274 15	Township 10 N., range 1 W., and township 10 N., range 2 W., M. D. M.	Returned, but not platted.
J. J. Underhill.....	D. B. Humbert.....	April 20, 1869	525 00	.....	Township 4 N., range 12 W., S. B. M.	Not returned.
E. M. Morgan.....	E. O. F. Hastings .....	May 19, 1869	400 00	.....		

SHEPHERD DAY,  
United States Surveyor General for California and Arizona.

## G 2.—Statement of special deposits for the survey of town sites in California during the fiscal year 1868 and 1869.

Date of contract.	Names of deputies.	Names of depositors.	Amount of deposit.	Amount of account.	Location of work.
Jan. 6, 1869	C. W. Finley.....	D. W. Spear.....	\$30 00	\$50 18	Town of Auburn.
Feb. 26, 1869	H. Austin.....	H. McCrear.....	45 00	45 00	Town of San Rafael.

SHERMAN DAY,  
United States Surveyor General for California and Arizona.

## H.—Account of appropriation for the salary of surveyor general of California and Arizona for the fiscal year ending June 30, 1869.

Dr.

Sept. 30, 1868—To account of L. Upson to September 15, 1868.....	\$627 72
Sept. 30, 1868—To account of S. Day, September 15 to September 30, 1868....	122 28
Dec. 31, 1868—To account of S. Day for second quarter.....	750 00
Mar. 31, 1869—To account of S. Day for third quarter.....	750 00
June 30, 1869—To account of S. Day for fourth quarter.....	750 00
	<u>3,000 00</u>

Cr.

July 20, 1868—By appropriation for salary of surveyor general of California and Arizona.....	\$3,000 00
--	------------

SHERMAN DAY,  
United States Surveyor General for California and Arizona.

## I.—Account of appropriations and private deposits for salaries of clerks and draughtsmen in the office of the surveyor general of California and Arizona for the fiscal year ending 30th June, 1869.

Dr.

Sept. 30, 1868—To salaries paid to clerks and draughtsmen for first quarter..	\$3,526 63
To salaries paid to clerks and draughtsmen for second quarter..	3,127 17
To salaries paid to clerks and draughtsmen for third quarter..	3,450 00
No salaries charged for the fourth quarter, there being no appropriation.	
To balance to be paid to William Pierce on account of deposit withdrawn because no surveys were made on his application.....	164 17
	<u>10,267 97</u>

Cr.

July 1, 1868—By balance over from last year.....	\$559 97
By appropriations as per letter of Commissioner General Land Office dated July 30, 1868, \$4,500, \$2,500.....	7,000 00

PRIVATE DEPOSITS.

July 17, 1868—E. O. F. Hastings, agent, township 17 north, range 17 west..	65 00
July 28, 1868—J. P. Sargeant, townships 11 and 12 south, range 3 east; township 11 south, range 4 east, Mount Diablo meridian.....	120 00
Aug. 14, 1868—Rising Sun Quartz Mining Company.....	25 00
Aug. 18, 1868—Inimitable Copper Mining Company.....	20 00
Aug. 24, 1868—P. Murphy, township 29 south, ranges 12 and 13 east; township 30 south, ranges 13 and 14 east, Mount Diablo meridian....	150 00
Sept. 9, 1868—Salathiel Quartz Mining Company.....	25 00
Sept. 18, 1868—W. Pierce, township 5 north, ranges 31 and 32 west, San Bernardino meridian.....	200 00



Oct. 10, 1868—F. P. & J. H. Hooper, township 8 north, range 1 east, Mount Diablo meridian.....	\$100 00
Nov. 9, 1868—J. Vivian, township 5 south, range 8 east, Mount Diablo meridian.....	65 00
Nov. 23, 1868—J. A. Chapman, township 11 south, range 21 east, Mount Diablo meridian.....	65 00
Dec. 3, 1868—V. E. Howard, township 1 south, range 12 east; township 1 north, ranges 11 and 12 east, San Bernardino meridian, (San Gabriel mission).....	100 00
Dec. 26, 1868—J. P. Brandt, township 10 north, range 6 west, Mount Diablo meridian.....	100 00
Dec. 30, 1868—S. Alstram, township 7 north, range 6 west, Mount Diablo meridian.....	65 00
Jan. 6, 1869—D. W. Spear, town of Auburn.....	50 00
Jan. 7, 1869—Western Pacific railroad office works.....	793 00
Jan. 12, 1869—A. W. McPherson, township 18 north, range 17 west, Mount Diablo meridian.....	50 00
Jan. 26, 1869—Conley & Garell, cement claim.....	25 00
Feb. 4, 1869—H. S. Chapman, township 28 south, range 20 east; township 29 south, range 21 east; township 30 south, range 22 east, Mount Diablo meridian.....	170 00
Feb. 10, 1869—C. Gurnee, township 8 south, range 3 west, Mount Diablo meridian.....	65 00
Feb. 20, 1869—H. Miller, township 30 south, range 21 east, Mount Diablo meridian.....	150 00
Feb. 26, 1869—H. McCrea, town of San Rafael.....	65 00
Mar. 2, 1869—F. F. Dingley, Providence Mining Company.....	40 00
Mar. 11, 1869—J. H. Redington, X. L. C. R. Quicksilver Mine.....	20 00
Mar. 17, 1869—Eureka Gold Mining Company.....	35 00
Mar. 17, 1869—Auroral Star Gold Mining Company.....	40 00
Mar. 19, 1869—John Wallace, township 2 south, range 6 east, Mount Diablo meridian.....	65 00
Mar. 20, 1869—W. B. Bowen, Pittsburg Mining Company.....	40 00
	<hr/> 10,267 97 <hr/>

SHERMAN DAY,

*United States Surveyor General for California and Arizona.*

J.—*Account of office rent, stationery, pay of messenger, and incidental expenses of the surveyor general's office for California and Arizona for the fiscal year ending June 30, 1869.*

## DR.

Sept. 30, 1868—To amount paid in July, August, and September—first quarter.....	\$1,193 86
Dec. 31, 1868—To amount paid in October, November, and December—second quarter.....	1,056 24
Mar. 31, 1869—To amount paid in January, February, and March—third quarter.....	1,082 23
June 30, 1869—To amount paid in April, May, and June—fourth quarter....	741 99
June 30, 1869—To balance on hand carried to next fiscal year.....	2,091 33
	<hr/> 6,170 70 <hr/>

## CR.

June 30, 1868—By balance from last year (according to letter of honorable Commissioner of General Land Office, dated July 30, 1868)...	\$4,170 70
Appropriation by act of July 20, 1868, for fiscal year ending June 30, 1869.....	3,000 00
	<hr/> 6,170 70 <hr/>
June 30, 1869—By balance brought forward.....	\$2,091 33
By appropriation by act of March 3, 1869, for fiscal year ending June 30, 1870.....	4,000 00
	<hr/> 6,170 70 <hr/>

SHERMAN DAY,

*United States Surveyor General for California and Arizona.*

K.—Statement of transcripts of field-notes of public surveys sent to the department, Washington, from the surveyor general's office for California during the fiscal year 1868-69.

Name of deputy.	When sent.	Character of work.	Meridian.	Remarks.
John Reed	July 3, 1863	Township 5 S., range 2 E.	Mount Diablo.	Township and section lines.
I. N. Chapman	Aug. 5, 1863	Township 16 N., ranges 16 and 17 W.	do	Township, section, and meander lines.
Do.	Aug. 5, 1863	Township 18 N., ranges 16 and 17 W.	do	Do.
Do.	Aug. 5, 1863	Township 14 N., range 7 W.	do	Do.
R. A. Chase	Aug. 5, 1863	Township 18 N., range 19 E.	do	Section lines.
W. F. Ingalls	Aug. 5, 1863	Township 7 S., range 2 W.	do	Township and section lines.
Do.	Aug. 5, 1863	Township 4 S., range 1 W.	do	Section lines.
W. H. Norway	Aug. 5, 1863	Townships 6 and 7 N., range 31 W.	do	Section and meander lines.
S. W. Foreman	Aug. 5, 1863	Township 10 S., range 2 W.	San Bernardino.	Township, section, and meander lines.
E. H. Dyer	Aug. 5, 1863	Township 4 S., ranges 2 and 3 E.	Mount Diablo.	Township and section lines.
Do.	Aug. 5, 1863	Township 5 S., ranges 2 and 3 E.	do	Do.
Do.	Aug. 5, 1863	Township 5 S., ranges 2 and 3 E.	do	Standard, township, section, and meander lines.
II. C. Ward	Aug. 13, 1863	Township 16 N., range 3 E.	do	Meander and section lines.
E. Dyer	Aug. 13, 1863	Township 46 N., range 16 E.	do	Do.
C. Wahl	Aug. 13, 1863	Township 7 N., range 10 W.	do	Township and section lines.
W. W. Dodd	Aug. 13, 1863	Township 11 N., ranges 7 and 8 W.	do	Do.
A. McPherson	Aug. 13, 1863	Townships 15, 17, and 18 N., range 1 W.	do	Township, meander, and section lines.
Nicholas Gray	Sept. 23, 1863	Township 11 N., range 7 W.	do	Section lines.
G. H. Thompson	Sept. 30, 1863	Township 1 N., range 3 W.	do	Township, meander, and section lines.
J. S. Murray	Sept. 30, 1863	Township 18 N., range 7 E.	Humboldt.	Township, meander, and section lines.
R. P. Riddle	Sept. 30, 1863	Township 8 S., range 2 W.	Mount Diablo.	Township and section lines.
John Reed	Sept. 30, 1863	Township 7 S., range 4 E.	do	Do.
Do.	Sept. 30, 1863	Township 13 N., range 16 W.	do	Do.
I. N. Chapman	Sept. 30, 1863	Township 6 N., range 5 W.	do	Meander and section lines.
W. A. Pierce	Sept. 30, 1863	Township 8 N., range 9 W.	do	Do.
J. B. Wood	Sept. 30, 1863	Township 4 N., range 1 E.	do	Section lines.
G. H. Perrin	Sept. 30, 1863	Township 3 N., range 1 W.	Humboldt.	Do.
G. P. Ingalls	Sept. 30, 1863	Township 9 N., ranges 13 and 14 W.	do	Township and section lines.
Do.	Sept. 30, 1863	Townships 10 and 11 N., range 14 W.	Mount Diablo.	Standard, township, and section lines.
Do.	Sept. 30, 1863	Township 11 N., range 15 W.	do	Township, section, and meander lines.
S. W. Foreman	Sept. 30, 1863	Townships 7 and 8 N., range 4 W.	do	Township and section lines.
Vitus Facknender	Sept. 30, 1863	Townships 9 and 8 N., range 11 W.	do	Township, section, and meander lines.
J. Wallace	Nov. 20, 1863	Township 3 N., range 5 E.	do	Section lines.
J. Falsdon	Nov. 20, 1863	Township 14 N., range 1 W.	do	Township and section lines.
J. S. Murray	Nov. 20, 1863	Township 8 N., range 1 W.	do	Township and section lines.
T. J. Dewooly	Nov. 20, 1863	Township 7 N., range 2 W.	Humboldt.	Section and meander lines.
S. W. Foreman	Nov. 20, 1863	Township 30 S., range 11 E.	Mount Diablo.	Section lines.
J. T. Stratton	Nov. 20, 1863	Township 7 S., range 1 E.	do	Section and meander lines.
S. W. Smith	Dec. 25, 1863	Townships 15 and 16 S., range 5 E.	do	Do.
C. Duerr	Dec. 25, 1863	Townships 4 S., range 1 E.	do	Township and section lines.
T. S. Towle	Dec. 25, 1863	Townships 14 and 15 N., range 15 W.	do	Section lines.
S. W. Smith	Dec. 25, 1863	Township 11 S., ranges 3 and 4 E.	do	Township and section lines.
Do.	Dec. 25, 1863	Township 12 S., range E.	do	Do.

## K.—Statement of transcripts of field-notes of public surveys, &amp;c.—Continued

Name of deputy.	When sent.	Character of work.	Meridian.	Remarks.
John M. Ingalls.....	Feb. 19, 1869.....	Township 26 N., range 1 W.....	Mount Diablo.....	Township, section, and meander lines.
Do.....	Feb. 19, 1869.....	Townships 25, 26, 27, and 28 N., range 2 W.....	do.....do.....	Do.
Do.....	Feb. 19, 1869.....	Townships 27 and 28 N., range 3 W.....	do.....do.....	Do.
Do.....	Feb. 19, 1869.....	Township 29 N., ranges 1 and 2 W.....	do.....do.....	Do.
Do.....	Feb. 19, 1869.....	Township 30 N., range 1 W.....	do.....do.....	Do.
William Magee.....	Feb. 19, 1869.....	Township 32 N., range 7 W.....	do.....do.....	Township and section lines.
Do.....	Feb. 19, 1869.....	Townships 23 and 24 N., range 2 W.....	do.....do.....	Section and meander lines.
W. S. Watson.....	Feb. 19, 1869.....	Township 8 N., range 1 E.....	Humboldt.....	Township, section, and meander lines.
T. J. Dewoody.....	Feb. 20, 1869.....	Township 16 N., range 5 W.....	Mount Diablo.....	Section and meander lines.
E. Dyer.....	April 13, 1869.....	Township 14 N., range 6 E.....	do.....do.....	Township, section, and meander lines.
Do.....	April 13, 1869.....	Township 15 N., range 6 E.....	do.....do.....	Do.
Henry Hancock.....	May 3, 1869.....	Township 12 N., range 11 W.....	San Bernardino.....	Section lines.
C. W. Findley.....	May 11, 1869.....	Township 3 S., range 9 W.....	Mount Diablo.....	Do.
Henry Hancock.....	May 28, 1869.....	Township 15 N., ranges 9 and 10 W.....	Mount Diablo.....	Township, section, and meander lines.
I. N. Chapman.....	June 16, 1869.....	Townships 18 and 19 N., range 17 W.....	do.....do.....	Township and section lines.
J. M. Ingalls.....	June 17, 1869.....	Township 20 N., range 17 W.....	do.....do.....	Do.

SHERMAN DAY,  
*United States Surveyor General for California and Arizona.*



1.—*Statements of transcripts of field-notes of public surveys sent to the department at Washington from the surveyor general's office for Arizona, during the fiscal year 1868-'69.*

Name of deputy.	When sent.	Character of work.	Meridian.	Remarks.
W. F. Ingalls	Dec. 3, 1868	Township 1 N., range 1 E.	Gila and Salt River.	Township and section lines.
Do	Dec. 3, 1868	Township 2 N., range 2 E.	do	Do.
Do	Dec. 3, 1868	Township 1 N., range 3 E.	do	Do.
Do	Dec. 3, 1868	Township 1 N., range 4 E.	do	Do.
Do	Dec. 3, 1868	Township 1 N., range 5 E.	do	Do.
Do	Dec. 3, 1868	Township 1 S., range 1 E.	do	Do.
Do	Dec. 3, 1868	Township 1 S., range 3 E.	do	Do.
Do	Dec. 3, 1868	Township 1 S., range 4 E.	do	Do.
Do	Dec. 3, 1868	Township 1 S., range 5 E.	do	Do.
Do	Dec. 3, 1868	Township 2 S., range 2 E.	do	Do.
Do	Dec. 3, 1868	Township 3 S., range 2 E.	do	Do.
Do	Dec. 3, 1868	Township 1 N., range 1 W.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 1 W.	do	Do.
Do	Jan. 13, 1869	Township 3 N., range 1 E.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 2 E.	do	Do.
Do	Jan. 13, 1869	Township 3 N., range 2 E.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 3 E.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 4 E.	do	Do.
Do	Jan. 13, 1869	Township 1 N., range 5 E.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 6 E.	do	Do.
Do	Jan. 13, 1869	Township 2 N., range 7 E.	do	Do.
Do	Jan. 13, 1869	Township 5 S., range 1 E.	do	Do.
Do	Jan. 13, 1869	Township 5 S., range 2 E.	do	Do.
Do	Jan. 13, 1869	Township 5 S., range 3 E.	do	Do.
Do	Jan. 13, 1869	Township 5 S., range 4 E.	do	Do.
Do	Jan. 13, 1869	Township 5 S., range 5 E.	do	Do.
Do	Jan. 13, 1869	Township 1 S., range 7 E.	do	Do.
Do	Jan. 13, 1869	Township 2 S., range 6 E.	do	Do.
Do	Jan. 13, 1869	Township 2 S., range 7 E.	do	Do.
Do	Jan. 13, 1869	Township 1 S., range 3 E.	do	Do.
Do	Jan. 13, 1869	Township 4 S., range 3 E.	do	Do.
Do	Jan. 13, 1869	Township 4 S., range 2 E.	do	Do.
G. P. and W. F. Ingalls	April 16, 1869	Township 5 S., range 7 E.	do	Section lines.
Do	April 16, 1869	Township 5 S., range 6 E.	do	Township and section lines.
Do	April 16, 1869	Township 5 S., range 5 E.	do	Do.
Do	April 16, 1869	Township 5 S., range 4 E.	do	Do.
Do	April 16, 1869	Township 5 S., range 3 E.	do	Do.
Do	April 16, 1869	Township 1 S., range 7 E.	do	Do.
Do	April 16, 1869	Township 2 S., range 6 E.	do	Do.
Do	April 16, 1869	Township 2 S., range 7 E.	do	Do.
Do	April 16, 1869	Township 1 S., range 3 E.	do	Do.
Do	April 16, 1869	Township 4 S., range 3 E.	do	Do.
Do	April 16, 1869	Township 4 S., range 2 E.	do	Section lines.

SHERMAN DAY,  
*United States Surveyor General for California and Arizona.*

L.—Statement of descriptive notes, decrees of court, &c., of private land claims to accompany plats for patent compiled for transmission to the department at Washington, during the fiscal year 1868-'69.

When sent.	Nature of works.	Name of claim.	To whom confirmed.	Original.	Department.
July 21, 1868	Plat, decrees, and descriptive notes.	Santa Gertrudes.....	Conception Nuto <i>et al.</i> ...	1	1
July 21, 1868	.....do.....	Colus.....	C. D. Semple.....	1	1
July 21, 1868	.....do.....	Santa Isabel.....	Joaquin Ortega <i>et al.</i> ...	1	1
July 21, 1868	.....do.....	Santa Margarita.....	Pio Pico <i>et al.</i> .....	1	1
July 29, 1868	.....do.....	Buri Buri.....	José de la Cruz Sanchez.....	1	1
July 29, 1868	.....do.....	Nipoma.....	William G. Dana.....	1	1
Aug. 13, 1868	.....do.....	Muscupiahe.....	Michael White.....	1	1
Aug. 13, 1868	.....do.....	Island or peninsula of San Diego.	Frederick Billings <i>et al.</i> ...	1	1
Sept. 18, 1868	Plat and opinion of surveyor general.	Najalayegua ó Prietos.	José Dominguez (by Congress.)	1	1
Sept. 18, 1868	Plat, decrees, and descriptive notes.	Sespi.....	Carlos Antonio Carillo ..	1	1
Sept. 18, 1868	.....do.....	Laguna de Los Calabasa.	Francisco Hernandez <i>et al.</i>	1	1
Sept. 29, 1868	.....do.....	Santa Ana del Chino.	Isaac Williams.....	1	1
Sept. 29, 1868	.....do.....	Addition to Santa Ana del Chino.	Isaac Williams.....	1	1
Nov. 13, 1868	.....do.....	La Purissima (mission)	Bishop Joseph S. Alemany.	1	1
Nov. 20, 1868	.....do.....	Laguna de la Merced.	Josefa de Haro <i>et al.</i> ....	1	1
Dec. 12, 1868	.....do.....	San José (in Los Angeles County.)	Ignacio Palomares.....	1	1
Dec. 12, 1868	.....do.....	Addition to San José.	Ricardo Vear.....	1	1
Dec. 12, 1868	.....do.....	Azusá.....	Henry Dalton.....	1	1
Dec. 29, 1868	.....do.....	Juriste.....	Antonio and Faustino German.	1	1
Jan. 5, 1869	.....do.....	City lands of Monterey.	City of Monterey.....	1	1
Jan. 13, 1869	.....do.....	Corumnez.....	William E. Hartwell.....	1	1
Feb. 5, 1869	.....do.....	Rio Santa Clara del Norte.	Juan Sanchez.....	1	1
Mar. 5, 1869	.....do.....	Napa, part of.....	N. Coombs.....	1	1
Mar. 29, 1869	.....do.....	Entre Napa.....	N. Coombs.....	1	1
April 16, 1869	.....do.....	Zayaute.....	S. Graham & Wm. Ware.	1	1
April 16, 1869	.....do.....	San Lorenzo.....	Elizabeth T. Randall.....	1	1
May 3, 1869	.....do.....	San Benito.....	James Watson.....	1	1
May 25, 1869	.....do.....	Sauzal Redondo.....	Antonio Ignacio Abila.....	1	1
May 25, 1869	.....do.....	Tajauta.....	Henrique Abila.....	1	1
May 25, 1869	.....do.....	Aguage del Centinella.	Brano Abila.....	1	1
May 25, 1869	.....do.....	Paso de la Tijiro.....	Casildo Aguilar <i>et al.</i> ...	1	1
July 2, 1869	.....do.....	El Rio de Santa Clara.	Valentin Cota <i>et al.</i> .....	1	1
July 8, 1869	.....do.....	Ojo de Agua de Fieguerra.	Heirs of A. Miranda.....	1	1
Aug. 17, 1869	Certificate of re-advertisement.	Cienega de los Paicines.	A. Castro <i>et al.</i> .....	1	1
Sept. 3, 1869	.....do.....	Buena Vista.....	Mariano Malaim, att'y ..	1	1

SHERMAN DAY,  
United States Surveyor General for California and Arizona.

M.—Statement of plats made in the office of the United States surveyor general for California and Arizona during the fiscal year 1868-'69.

Description.	Original.	Department.	Register.	Court.	Skeleton plats.	Sketches for deputies.	Miscellaneous.	Total.
Plats of township lines.....	9	9	.....	.....	.....	.....	.....	18
Plats of subdivision lines.....	113	143	102	.....	.....	.....	.....	363
Plats of ranchos.....	35	.....	.....	.....	132	.....	.....	167
Plats of mining claims.....	13	9	13	.....	.....	.....	.....	35
General maps.....	.....	.....	.....	.....	.....	.....	.....	.....
Tracings.....	.....	.....	.....	12	.....	20	8	49
Aggregate.....	.....	.....	.....	.....	.....	.....	.....	632

SHERMAN DAY,  
United States Surveyor General for California and Arizona,

N.—List of lands surveyed in California from June 30, 1868, to June 30, 1869.

[illegible]







N1.—List of lands surveyed in Arizona from June 30, 1862, to June 30, 1863.

No. of townships surveyed.	Description.	Public land.						A.	B.	C.	D.	E.	F.	Remarks.	Total.	
		Acres.														
Gila and Salt River meridian.																
1	Township 1 N., range 1 E.	22,944.89						Acres.	Acres.	Acres.	Acres.	Acres.	Acres.			Acres.
2	Township 1 N., range 2 E.	22,972.80														22,972.80
3	Township 1 N., range 3 E.	22,997.89														22,997.89
4	Township 1 N., range 4 E.	23,027.06														23,027.06
5	Township 1 N., range 5 E.	23,066.95														23,066.95
6	Township 1 N., range 6 E.	22,987.77														22,987.77
7	Township 2 N., range 2 E.	22,994.69														22,994.69
8	Township 2 N., range 3 E.	20,439.21									25,060.00					22,992.21
9	Township 2 N., range 4 E.	18,276.20														22,976.20
10	Township 2 N., range 5 E.	22,991.13														22,991.13
11	Township 2 N., range 6 E.	13,058.76									9,870.00					22,928.76
12	Township 2 N., range 1 E.	22,948.44														22,948.44
13	Township 3 N., range 2 E.	22,910.53														22,910.53
14	Township 3 N., range 1 E.	23,073.33														23,073.33
15	Township 1 N., range 1 W.	21,390.92									1,680.00					23,040.92
16	Township 2 N., range 1 W.	22,991.16														22,991.16
17	Township 1 S., range 5 E.	22,954.12														22,954.12
18	Township 1 S., range 6 E.	22,897.67														22,897.67
19	Township 1 S., range 7 E.	22,953.58														22,953.58
20	Township 1 S., range 2 E.	15,910.12														22,950.12
21	Township 1 S., range 1 E.	10,562.06									7,040.00					22,942.06
22	Township 1 S., range 3 E.	6,056.12											12,380.00			22,956.12
23	Township 1 S., range 4 E.	22,936.66									16,900.00					22,936.66
24	Township 2 S., range 2 E.	19,067.11														22,947.11
25	Township 2 S., range 6 E.	22,926.15														22,926.15
26	Township 2 S., range 7 E.	22,951.12														22,951.12
27	Township 3 S., range 2 E.	13,308.96														22,968.96
28	Township 3 S., range 3 E.	23,140.91														23,140.91
29	Township 4 S., range 2 E.	19,577.58														22,997.58
30	Township 5 S., range 3 E.	23,070.39									3,420.00					23,070.39
31	Township 5 S., range 4 E.	22,708.03									320.00					23,028.03



32	Township 5 S., range 5 E.	12, 798.84	10, 236.00	23, 034.84
33	Township 5 S., range 6 E.	19, 760.70	3, 280.00	23, 040.70
34	Township 5 S., range 7 E.	9, 711.82		23, 021.82
	Aggregate surveyed	675, 243.07	59, 186.00	781, 479.07

SHERMAN DAY,  
*Surveyor General for California and Arizona.*

O.—*Estimate for the surveying service in the district of California and Arizona for the fiscal year ending June 30, 1871.*

For surveying extensions of standard parallels, township exteriors, and subdivision lines in California .....	\$70,000
For the same in Arizona .....	10,000
For rent of office, stationery, wages of messenger, instruments, and other incidental expenses, including \$1,500 on last quarter of fiscal year ending June 30, 1869 .....	7,500
For compensation of surveyor general .....	3,000
For compensation of clerks and draughtsmen in the office of the surveyor general .....	15,500
<b>Total</b> .....	<b>105,900</b>

SHERMAN DAY,  
*Surveyor General for California and Arizona.*

O 1.—*Account of special deposits made with the assistant treasurer of the United States at San Francisco, for advertising mining claims to be surveyed under the direction of the United States surveyor general for California and Arizona.*

Date of deposit.	By whom deposited.	Amount.
August 18, 1868	Inimitable Copper Mining Company .....	\$20 00
October 7, 1868	Salathiel Quartz Mining Company .....	25 00
January 26, 1869	Conley and Gowell cement claim .....	40 00
March 2, 1869	F. F. Dingley, Providence Mining Company .....	25 00
March 11, 1869	J. H. Reddington, X. L. C. R. Quicksilver Mine .....	45 00
March 17, 1869	Eureka Gold Mining Company .....	30 00
March 17, 1869	Auroral Star Gold Mining Company .....	25 00
March 20, 1869	W. B. Bowen, Pittsburg Mining Company .....	25 00
<b>Total</b> .....		<b>235 00</b>

SHERMAN DAY,  
*United States Surveyor General for California and Arizona.*

P.—*Statement of deposits for survey, &c., of private land claims during the fiscal year 1868'–69.*

Name of rancho.	By whom deposited.	Amount of deposit.	Amount paid.	Balance.
La Bocade la Playa .....	Colonel Countts .....	\$445 00	\$300 00	\$145 00
La Sierra .....	B. Yorba .....	580 00	489 84	90 16
Buena Vista .....	Colonel Countts .....	220 00	164 75	55 25
Los Vallecitos .....	Colonel Countts .....	350 00	85 25	264 75
San Dieguito .....	Juan M. Ozana .....	605 00	439 00	166 00
Las Positas .....	C. J. Pringle .....	455 00	390 00	65 00
Monseratte .....	J. J. Williams .....	500 00	105 00	395 00
Huasua .....	M. Harloe .....	205 00	135 00	70 00
Mission San Diego .....	B. Hays .....	1,000 00	200 00	800 00
Panma .....	B. Hays .....	500 00	285 00	215 00
Valle de Pamo .....	Augustin Olvera .....	560 00	.....	560 00
El Cajon de Santa Ana .....	Polhemus .....	678 00	505 00	173 00
Tract near San Gabriel .....	D. B. Wilson .....	122 75	60 00	62 75
Cañadade les Coches .....	H. P. Gallagher .....	122 50	.....	122 50
San Rafael .....	S. Dreyfous .....	700 00	.....	700 00
Piedra Blanca .....	J. Clark and L. Castro .....	1,170 00	910 00	260 00
Pleyto .....	W. S. Johnson <i>et al</i> .....	770 00	639 00	131 00
Santa Rosa y Laguna .....	Juan Moreno, (confirmed) .....	1,350 00	1,342 39	7 61
San Antonio o Rodes de las Agnas .....	M. R. Baldez .....	285 00	268 44	16 56
City of Sonoma .....	Mayor and council .....	413 00	250 00	163 00
Los Prietos .....	E. J. Pringle .....	770 00	670 00	100 00
Santa Rosa .....	Francisco Cota .....	593 00	450 00	143 00
Point Pinos .....	Kennedy and Hopkins .....	72 00	40 00	32 00
San Vincente y Santa Monica .....	Thomas Mott .....	925 00	835 00	85 00
Providencia and Cahuenga .....	Doctor Burbank .....	.....	.....	130 00
Todos Santos .....	Joaquin Argue .....	.....	.....	600 00

SHERMAN DAY,  
*United States Surveyor General for California and Arizona.*

No. 18 N.—*Annual report of the surveyor general of Oregon.*

SURVEYOR GENERAL'S OFFICE,  
Eugene City, August 9, 1869.

SIR: I have the honor to transmit herewith the usual annual report and accompanying map and statements, to wit:

A.—Statement of surveying contracts made under the appropriation for fiscal year ending June 30, 1869.

B.—Statement of original plats of public surveys, and copies transmitted to the general and local land offices since June 30, 1868.

C.—Statement of townships surveyed since June 30, 1868, with area of public lands.

D.—Statement of surveying contracts made under appropriation for fiscal year ending June 30, 1870.

E.—Statement of salaries paid the surveyor general and clerks during fiscal year ending June 30, 1869.

F.—Statement of incidental expenses for fiscal year ending June 30, 1869.

G.—Map showing the progress of surveys in Oregon.

H.—Estimate for surveying and office expenses for fiscal year ending June 30, 1871. The statements and map above enumerated show the business of this office up to and including the 30th day of June, 1869.

In view of the termination of Indian difficulties, I was impressed with the necessity of extending surveys as rapidly as possible in the fine valleys of southeastern Oregon, which has been proven to be one of the finest sections of country in the State; and it was fortunate that this step was taken just when it was, since settlements have already extended over most of that country. Your instructions, calling attention to the necessity of extending surveys along the line of the Oregon central military road, have been at the same time carried out to the fullest extent compatible with other interests, and redeeming promises to make up for delays occasioned by Indian difficulties, as explained in my annual report dated July 1, 1867.

During last winter I had some of the marginal townships surveyed in the wood lands, by Mr. Meldrum, upon my plan of compensation, by balancing good against bad, as explained to you in a former report; and upon the same plan, with Mr. David, I succeeded in extending surveys over very difficult grounds along the Middle Fork of the Willamette River. This arrangement met a very urgent demand.

It has been conceived to be the true policy of this district to press forward as rapidly as possible the principal surveys, or those covering the main valleys and largest settlements first, and then extend by marginal surveys afterward, as the advancement of settlements may require. Consequently, I took up with renewed earnestness the matter of extending the surveys over the great valley of the John Day. Here are some of the oldest unsurveyed settlements in the State, and many urgent solicitations by the settlers themselves, and also by the leading men of the State, have been made for the extension of those surveys. There is an almost unbroken settlement nearly a hundred mile in length lying along the prairie bottoms of the John Day River. Some of these settlers are opposed to the extension of these surveys, and no doubt will avail themselves of any pretext to have it put off, because those surveys would undoubtedly curtail the extent of their possessions, a condition of affairs which was explained in my annual report dated July 20, 1866. The Dalles military road runs the length of this valley, and for its construction Congress made appropriation of lands. These lands, not being surveyed, could not be used upon the immediate construction, of course, but the expenditures of the company were made in view of ultimate compensation out of those lands when the same could be made available. In giving due consideration to your instructions I have felt it eminently incumbent upon me to procure the survey of that section of country at the earliest possible moment.

Extensive settlements have been made in the Ochoco Valley, on Crooked River, and there have been urgent importunities for surveys there, both by the settlers and by the road company, which has built a road over the Cascade Mountains and through this valley. Congress has made appropriation of lands for the construction of this road, and therefore the urgent demands for surveys along the line of their road, and embracing those sections which promise the most ready return from the lands which may fall to the company. These interests and appeals have been met to the best advantage in the contract covering the Ochoco Valley.

In view of the appropriations of lands which have been made by Congress for the construction of roads across the interior of the State, and the necessity of those lands being surveyed, that the purpose for which they were granted may be carried out, the estimate for surveys in this district is as little as it should be. Reasons for a more rapid extension of surveys have accumulated faster than the quantity of means have been augmented. One important reason has been the conclusion of the Indian war, and the consequent more rapid spread of settlements to the interior valleys. Another is in the action of Congress in making great appropriations of lands for the construc-



tion of roads. The members of these companies which have been designated as entitled to these lands advance their means for the construction of these roads upon the faith of the government that these lands will, at as early a day as possible, be made available to them, and by means of which they may ultimately discharge their debts and compensate themselves for their outlays of time and money. That these remarks which I have made touching the subject of these appropriations may have the weight to which I deem them entitled, I consider it necessary to remark that I have no personal interest in any land grant in this State, and while I remain the incumbent of this office it is my purpose to maintain a disinterested position in regard to all these land interests.

I am opposed to monopolies and land speculations; yet, when private individuals have advanced their means for great public improvements upon certain stipulations of the government, I am in favor of the strictest faith being maintained toward those parties. As a general rule, however, Congress should require lands to be sold to actual settlers not to exceed a certain price; but a discrimination in regard to the nature and condition of lands should be reached. Some lands are not suitable for homesteads or pre-emptions, being rough, timbered, or high rolling grass lands some distance from water. Such lands should be offered at public sale; and there are fractional pieces, too detached for homesteads or pre-emptions; these should also be listed and sold. There are considerable quantities of such lands as these in this country, and, if some provision for their disposal could be made, it would work a public benefit, and could be managed so as to avoid either speculation or monopoly.

As to the discrimination in favor of timbered lands in the per mileage for surveys, I hope it will be maintained; nor will I ask for the rates to be increased, though competent deputies cannot now be found who are willing to take contracts on the difficult grounds for the highest prices paid, upon the merit of that price alone; but currency has a tendency to come up, and may even become, as an effect of the Pacific railroad, the basis of business upon this coast; and wages and outfit have a tendency downward. By proceeding, therefore, upon the policy which I have adopted, I believe that even the worst of the work can gradually be performed.

In pursuance of your instructions, under act of Congress approved December 26, 1866, appropriating lands to the Oregon Central Military Road Company as indemnity for lands previously taken up, I have located 20,112.33 acres, and shall proceed with such locations to completion as soon as I am authentically informed of the quantity required as indemnity, having officially notified said company of the necessity of furnishing the said authentic information.

Very respectfully, your obedient servant,

E. L. APPLEGATE,  
*Surveyor General of Oregon.*

Hon. JOSEPH S. WILSON,  
*Commissioner of General Land Office.*

Contract.	No.	Date.	Contractors.	Location and description of lines.	Amount surveyed.			Gross amount.	Remarks.
					Standard parallel, at \$15 per mile.	Exteriors, at \$12 per mile.	Subdivisions, at \$10 per mile.		
123	July 27, 1868		Wm. H. Odell, Wm. B. Pongra, and Jos. Gray.	Eighth standard parallel south, east from southeast corner of township 39 south, range 15 east, to southeast exterior and subdivisinal lines of townships 35 and 36 south, ranges 19 and 20 east; townships 37 and 38 south, ranges 17, 18, 19, 20, 21, and 22 east; and township 39 south, ranges 16, 17, 18, 19, 20, and 21 east. Exterior and subdivisinal lines of township 20 south, range 11 east; 21 south, ranges 10 and 11 east; 22 and 23 south, range 9 east; 24 south, range 8 east; 25 and 26 south, ranges 7 and 8 east; and 38 and 39 south, ranges 11, 12, 13, 14, and 15 east. Exterior lines of township 7 south, range 2 east; 6 south, range 3 east; 5 south, range 4 east; and 4 south, range 5 east; and subdivisinal lines of township 7 south, range 2 east; south half of 6 south, range 2 east; 5 and 6 south, range 3 east; 5 south, range 4 east; and 4 south, range 5 east. Exterior and subdivisinal lines of township 22 south, ranges 3 and 4 east; 23 south, range 4 east; 21 south, range 3 east; and subdivisions of township 19 south, range 1 east. Second standard parallel south, between townships 10 and 11 south, through ranges 17, 16 and 15 east; also exterior and subdivisinal lines of townships 8, 9, and 10 south, range 17 east, and townships 9 and 10 south, ranges 14, 15, and 16 east. Exterior and subdivisinal lines of township 3 north, ranges 24 and 25 east; and subdivisinal lines of north half of township 1 north, range 21 east.	<i>M. ch. li.</i> 26 19 20	<i>M. chs. lks.</i> 251 63 37	<i>M. chs. lks.</i> 1, 069 68 57	\$14, 113 67	Contract closed, account transmitted, and reported for payment.
124	July 27, 1868		D. P. Thompson, B. J. Pongra, and J. W. Meldrum.		6 00 00	225 25 21	985 63 98	12, 562 23	Contract closed, account transmitted, and reported for payment.
125	Nov. 16, 1868		John W. Meldrum		.....	9 00 00	137 77 46	1, 457 68	Contract closed, account transmitted, and reported for payment.
126	Feb. 5, 1869		John B. David		.....	34 10 00	131 08 57	1, 708 22	Contract closed, account transmitted.
127	Mar. 2, 1869		John H. McClung and J. W. Meldrum.		.....	.....	.....	.....	Notes returned, not examined, June 30, 1869; estimated amount, \$6, 966.
128	Mar. 17, 1869		D. P. Thompson		.....	24 11 11	147 79 75	1, 769 63	Contract closed, account transmitted.





C.—Townships surveyed since June 30, 1863, with area of public lands.

Number.	Description.		Acres.	By whom surveyed.
	Townships.	Ranges.		
1	7 south.....	2 east.....	13,903.60	John W. Meldrum.
2	5 south.....	3 east.....	18,540.50	
3	21 south.....	3 east.....	3,186.19	John B. David.
4	22 south.....	3 east.....	7,077.76	
5	23 south.....	3 east.....	7,449.96	John W. Meldrum.
6	24 south.....	3 east.....	6,145.81	
7	5 south.....	4 east.....	4,493.79	John B. David.
8	24 south.....	4 east.....	12,715.55	
9	4 south.....	5 east.....	13,201.23	John W. Meldrum.
10	25 south.....	7 east.....	23,077.10	
11	26 south.....	7 east.....	11,196.10	Thompson, Pengra, and Mel- drum.
12	24 south.....	8 east.....	20,600.84	
13	25 south.....	8 east.....	23,032.21	Odell, Gray, and Pengra.
14	26 south.....	8 east.....	11,524.25	
15	23 south.....	9 east.....	23,003.12	Odell, Gray, and Pengra.
16	24 south.....	9 east.....	23,029.74	
17	21 south.....	10 east.....	23,952.61	Odell, Gray, and Pengra.
18	22 south.....	10 east.....	22,879.43	
19	23 south.....	10 east.....	22,783.24	Odell, Gray, and Pengra.
20	39 south.....	11 east.....	22,011.67	
21	39 south.....	12 east.....	16,262.03	Odell, Gray, and Pengra.
22	38 south.....	13 east.....	23,046.74	
23	39 south.....	13 east.....	17,593.60	Odell, Gray, and Pengra.
24	38 south.....	14 east.....	21,075.56	
25	39 south.....	14 east.....	23,142.39	Odell, Gray, and Pengra.
26	38 south.....	15 east.....	23,514.95	
27	39 south.....	15 east.....	23,177.28	Odell, Gray, and Pengra.
28	33 south.....	18 east.....	5,440.00	
29	39 south.....	18 east.....	3,839.84	Odell, Gray, and Pengra.
30	33 south.....	19 east.....	6,474.89	
31	34 south.....	19 east.....	14,799.90	Odell, Gray, and Pengra.
32	35 south.....	19 east.....	19,679.48	
33	38 south.....	19 east.....	19,364.02	Odell, Gray, and Pengra.
34	39 south.....	19 east.....	22,987.68	
35	35 south.....	20 east.....	17,955.67	Odell, Gray, and Pengra.
36	36 south.....	20 east.....	21,435.16	
37	37 south.....	20 east.....	19,841.98	Odell, Gray, and Pengra.
38	38 south.....	20 east.....	22,998.72	
39	39 south.....	20 east.....	19,447.62	Odell, Gray, and Pengra.
40	35 south.....	21 east.....	4,801.62	
41	36 south.....	21 east.....	9,270.56	Odell, Gray, and Pengra.
42	37 south.....	21 east.....	5,916.32	
43	38 south.....	21 east.....	6,080.80	Odell, Gray, and Pengra.
44	39 south.....	21 east.....	7,693.23	
45	36 south.....	22 east.....	23,027.50	Odell, Gray, and Pengra.
46	37 south.....	22 east.....	13,283.12	
47	38 south.....	22 east.....	17,635.34	Odell, Gray, and Pengra.
48	39 south.....	22 east.....	23,017.83	
49	36 south.....	23 east.....	23,020.85	Odell, Gray, and Pengra.
50	37 south.....	23 east.....	23,033.15	
51	38 south.....	23 east.....	23,037.13	David P. Thompson.
52	36 south.....	24 east.....	12,907.80	
53	1 north.....	21 east.....	11,698.28	David P. Thompson.
54	3 north.....	24 east.....	23,311.24	
55	3 north.....	25 east.....	23,392.33	David P. Thompson.
Total acres .....			905,009.31	

## D.—Surveying contracts made under appropriation for fiscal year ending June 30, 1870.

Contract.	No.	Date.	Contractors.	Location and description of lines.	Estimated amount of surveys.			Estimated amount.	Remarks.
					Standard parallel, at \$15 per mile.	Exteriors, at \$12 per mile.	Subdivisions, at \$10 per mile.		
129		June 7, 1869	J. H. McClung and J. W. Meldrum.	Standard parallel from the corner to townships 15 and 16 south, ranges 17 and 18 east, east 6 miles, and west 24 miles; also, standard parallel from corner to townships 13 and 14 south, ranges 14 and 15 east, west 6 miles. Exterior and subdivisional lines of townships 14 and 15 south, ranges 15, 16, 17, and 18 east; and 14 south, range 14 east; and exterior lines of township 15 south, range 14 east.	Miles. 36	Miles. 96	Miles. 540	\$7,092 00	Deputies in the field.
130		June 8, 1869	H. F. Stratton and Wm. B. Pengra.	Sixth standard parallel south from corner to townships 30 and 31 south, ranges 13 and 14 east, 6 miles east. Exterior and subdivisional lines of township 31 south, ranges 13 and 14 east; 32 and 33 south, ranges 9, 13, and 14 east, and 14 south, ranges 9, 10, 11, 12, 13, and 14 east.	6	162	840	10,434 00	Deputies in the field.
131		June 8, 1869	D. P. Thompson, B. J. Pengra, and J. E. David.	Exterior and subdivisional lines of fractional townships 5 north, range 26 east; 4 north, ranges 24, 25, 26, and 27 east; 3 north, ranges 21, 22, and 23 east; also a standard parallel from corner to townships 12 and 13 south, ranges 17 and 18 east, east to southeast corner of township 12 south, range 34 east; also exterior and subdivisional lines of township 12 south, ranges 22, 23, 24, 25, 26, 27, 28, 32, and 33 east; 13 south, ranges 29, 30, 31, 32, 33, and 34 east; 18 south, ranges 12 and 13 east; 19 south, ranges 11 and 12 east; 20 south, ranges 10 and 11 east; 21 and 22 south, range 11 east.	102	350	1,427	20,000 00	Deputies in the field.

## E.—Salaries paid the surveyor general and clerks for fiscal year ending June 30, 1869.

Name.	Occupation.	Nativity.	Time of service.	Am't paid.
E. L. Applegate .....	Surveyor general .....	Missouri .....	Entire year .....	\$2,500 00
Joel Ware .....	Chief clerk .....	Ohio .....	do .....	1,600 00
John T. Bloomfield .....	Draughtsman .....	Indiana .....	Three months .....	350 00
John H. McClung .....	do .....	Ohio .....	Six months .....	700 00
George Stowell .....	do .....	Indiana .....	Three months .....	350 00
Bell Jennings .....	Clerk .....	Pennsylvania .....	Entire year .....	1,200 00
W. W. Parsons .....	do .....	Indiana .....	Three months .....	300 00
Total .....				7,000 00

## F.—Incidental expenses for fiscal year ending June 30, 1869.

Date of voucher.	For what expended.	Amount.
Sept. 30, 1868	Rent of office .....	\$75 00
Sept. 30, 1868	Messenger .....	150 00
Sept. 30, 1868	Wood .....	100 00
Sept. 30, 1868	Postage .....	11 00
Dec. 31, 1868	Rent of office .....	75 00
Dec. 31, 1868	Messenger .....	150 00
March 31, 1869	Stoves, tin cases, &c .....	59 50
March 31, 1869	Office furniture, book cases, and table .....	113 00
March 31, 1869	Postage .....	24 00
March 31, 1869	Rent of office .....	75 00
March 31, 1869	Messenger .....	150 00
June 30, 1869	Rent of office .....	75 00
June 30, 1869	Messenger .....	150 00
June 30, 1869	Stationery .....	208 75
June 30, 1869	Chairs .....	32 00
June 30, 1869	Office furniture .....	15 00
June 30, 1869	Postage .....	10 00
Total .....		1,473 25

## H.—Estimate for surveying and office expenses for year ending June 30, 1871.

## OFFICE EXPENSES.

Salary of surveyor general .....	\$2,500
Salary of chief clerk .....	1,600
Salary of draughtsman .....	1,400
Salary of two clerks, at \$1,200 .....	2,400
Incidental expenses, messenger, rent, &c .....	2,000
	<u>\$9,900</u>

## SURVEYING SERVICE.

For surveying 150 miles standard parallel, at \$15 .....	2,250
For surveying 50 miles standard parallel, at \$18 .....	900
For surveying 720 miles exteriors, at \$12 .....	8,640
For surveying 240 miles exteriors, at \$15 .....	3,800
For surveying 3,600 miles subdivisions, at \$10 .....	36,000
For surveying 600 miles subdivisions, at \$12 .....	7,200
	<u>58,790</u>
Total .....	<u>68,690</u>



No. 18 O.—*Annual report of the surveyor general of Washington Territory.*

SURVEYOR GENERAL'S OFFICE,  
*Olympia, Washington Territory, August 14, 1869.*

SIR: Herewith I have the honor to submit the annual report of the operations of this office for the fiscal year ending June 30, 1869, embracing statements as follows:

A.—Showing the condition of contracts which were not closed at the date of the last annual report.

B.—Showing the amount, character, and condition of the public surveys contracted for since the date of the last annual report.

C.—Showing original plats made and number of copies transmitted to the General Land Office and to the district land offices during the fiscal year.

D.—Showing the number of lineal miles run, the rate of compensation per mile, and the total cost of surveys in the Territory during the year.

E.—Showing the number of acres of public lands surveyed in the Territory during the year.

F.—Showing the amount of appropriations and the number and amount of contracts let to deputy surveyors during the year.

I have the honor also to transmit a copy of an estimate of the amount required for surveys and miscellaneous expenses in this Territory for the fiscal year ending June 30, 1871, marked Statement G, the original having been forwarded by my predecessor on the 6th of July, 1869.

It will be seen that the estimated amount required is largely in excess of the annual appropriations made for this Territory for the past few years, although not greater than will be necessary to enable this office to make surveys now called for, and to provide for the largely increased immigration which will undoubtedly flow hither in consequence of the increased facilities for transportation afforded by the opening of the transcontinental railroad.

Numerous petitions for surveys are now on file from actual settlers, of long standing, which cannot be complied with, owing to the small amount appropriated for surveys in this Territory for the present fiscal year.

There is also transmitted herewith a map of the Territory of Washington, showing the state of public surveys, topographical notations, political subdivisions, and other important features, compiled from the most recent data on file in this office.

A very large portion of the unsurveyed public lands in this Territory lying west of the Cascade Mountains is covered with dense forests and thick undergrowth, which in many places are almost impenetrable. To extend the lines of surveys over these lands requires great labor and expense. The fact has been thoroughly demonstrated that the public surveys *cannot* be extended through these dense forests at the rates now allowed by law, either for standard, exterior, or sectional lines, without loss to the deputy surveyors. Actual settlers are frequently compelled to pay deputies a large *bonus* in order to procure a survey of their lands and obtain a title to their homes.

Many settlers, especially those on donation claims, have resided on their lands from ten to twenty years, and they are yet unsurveyed.

I would therefore respectfully, yet earnestly, recommend that the surveyor general of this district be authorized in his discretion to contract for surveys of lands densely covered with forests or thick undergrowth at augmented rates, as follows:

For standard parallels and meridian lines, not exceeding eighteen dollars per mile; for township lines, not exceeding sixteen dollars per mile; and for section lines, not exceeding fourteen dollars per mile.

Having entered upon the duties of my office since the close of the last fiscal year, I am unable to report the operations of the office during the year further than what appears from the inclosed statements.

Very respectfully, your obedient servant,

E. P. FERRY,  
*Surveyor General Washington Territory.*

Hon. JOSEPH S. WILSON,  
*Commissioner of General Land Office.*

A.—*Showing the condition of contracts which were not closed at the date of the last annual report.*

No. of contract.	Date.	Name of deputy.	Work designated.	Remarks.
95	July 8, 1867	E. M. Mecker.....	West boundary, township 21 north, range 4 east; and subdivisions and meanders, townships 21 north, ranges 3, 4, and 5 east.	Closed, surveys all completed. Plats and copies of field-notes transmitted to General Land Office.
96	August 3, 1867	Simmons and Cock	Exteriors and subdivisions, township 33 north, range 12 east. Balance reported upon last year.	Closed, surveys all completed. Plats and copy of field-notes transmitted.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

E. P. FERRY,  
Surveyor General Washington Territory.

B.—*Showing the amount, character, and condition of the public surveys contracted for since the date of the last annual report, June 30, 1868.*

No. of contract.	Date of contract.	Names of deputies.	Surveys embraced in contract.	Estimated number of miles.	Rate per mile.	Estimated amt.	Remarks.
99	July 24, 1868.	L. P. Beach...	Subdivisions, township 14 north, range 1 west; subdivisions, townships 13 and 16 north, range 21 east; subdivisions, townships 17 and 18 north, ranges 19 and 20 east.	\$420	\$10	\$4,200	Work all completed. Plats and copies of field-notes transmitted.
100	July 25, 1868.	E. Giddings...	Exteriors and subdivisions, township 6 north, ranges 26 and 27 east.	*72	12	864	Work all completed. Plats and copies of field-notes transmitted.
101	July 28, 1868.	E. Richardson.	Township 7 north, ranges 26, 27, 28, and 29 east.	†360	10	3,600	
			Exteriors, township 5 north, ranges 18, 19, 20, and 21 east.	48	12	576	Work all completed. Plats and copies of field-notes transmitted.
			Subdivisions, township 4 north, ranges 19 and 20 east; subdivisions, township 5 north, ranges 18, 19, 20, and 21 east.	360	10	3,600	
102	Aug. 4, 1868.	D. F. Byles...	North boundary, township 17 north, range 5 west.	6	12	72	Closed. Plats and copies of field-notes transmitted.
			Subdivisions, township 17 north, range 5 west.	60	10	600	
			Section 21, township 16 north, range 5 west.	2	10	20	
103	Aug. 22, 1868.	E. M. Meeker.	Subdivisions and meanders, fractional township 20 north, range 2 east.	45	10	450	Closed. Plats and copy of field-notes transmitted.
104	Aug. 11, 1868.	Simmons and Cook.	Subdivisions, townships 10 and 11 north, ranges 24 and 25 east.	240	10	2,400	Closed. Plats and copies of field-notes transmitted.
105	Mar. 10, 1869.	L. P. Beach...	Subdivisions and meanders, fractional township 29 north, range 5 east.	75	10	750	Closed. Plats and copy of field-notes transmitted.

\* Exteriors.

† Subdivisions.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

E. P. FERRY,  
Surveyor General Washington Territory.



C.—Showing original plats made, and number of copies transmitted to the General Land Office and to the district land offices since the date of the last annual report.

Exteriors. No. of townships.	Subdivisions. No. of townships.	Description of plats.	Original plats.	General Land Office copies.	District land office copies.	Total.	When transmitted.
2 4 4 1	1	Township 14 north, range 1 west .....	1	1	1	3	Sept. 19, 1868.
	2	Townships 13 and 16 north, range 21 east .....	2	2	2	6	Oct. 8, 1868.
	2	Townships 17 and 18 north, range 19 east .....	2	2	2	6	Jan. 2, 1869.
	2	Townships 17 and 18 north, range 20 east .....	2	2	2	6	Jan. 2, 1869.
	2	Township 6 north, ranges 26 and 27 east .....	2	2	2	6	Dec. 10, 1868.
	4	Township 7 north, ranges 26, 27, 28, and 29 east .....	4	4	4	12	Dec. 10, 1868.
	4	Township 5 north, ranges 18, 19, 20, and 21 east .....	4	4	4	12	Sept. 23, 1868.
	2	Township 4 north, ranges 19 and 20 east .....	2	2	2	6	Mar. 10, 1869.
	4	Townships 10 and 11 north, ranges 24 and 25 east .....	4	4	4	12	Mar. 30, 1869.
	1	Township 17 north, range 5 west .....	1	1	1	3	Jan. 28, 1869.
	1	Township 16 north, range 5 west, section 21 .....	1	1	1	3	Jan. 28, 1869.
	1	Township 20 north, range 2 east .....	1	1	1	3	Feb. 25, 1869.
	1	Township 29 north, range 5 east .....	1	1	1	3	June 30, 1869.
	27	DONATION CLAIM PLATS.	27	27	27	81	
	1	Township 20 north, range 3 east .....	1	1	1	3	Dec. 31, 1868.
	1	Township 21 north, range 5 east .....	1	1	1	3	Dec. 31, 1868.
	1	Township 22 north, range 5 east .....	1	1	1	3	Dec. 31, 1868.
	1	Township 21 north, range 4 east .....	1	1	1	3	Mar. 2, 1869.
	1	Township 20 north, range 2 east .....	1	1	1	3	Mar. 25, 1869.
	1	Township 5 north, ranges 1 east and 1 west, (diagram) .....	1	1	1	3	Oct. 19, 1868.
11	33		33	33	33	99	
		General maps, (territorial) .....	1			2	
		Miscellaneous .....				14	
		Total .....				115	

E. P. FERRY,  
Surveyor General Washington Territory.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

D.—Showing the number of lineal miles run, the rates per mile, and the total cost of surveys in Washington Territory during the fiscal year ending June 30, 1869.

Description.	Distance.	Rate per mile.	Amount.
	Miles. chs. lks.		
Standard lines .....			
Meridian .....			
Exterior township boundaries .....	142 36 49	\$12 00	\$1,709 47
Subdivisional and meander lines .....	1,714 19 83	10 00	17,142 47
Total number of miles .....	1,856 56 32		
Total cost of surveys .....			18,851 94

E. P. FERRY,  
Surveyor General Washington Territory.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

E.—Showing the number of acres of public lands surveyed in Washington Territory during the fiscal year ending June 30, 1869.

No.	Description of townships surveyed.	Acres.
1	Township 4 north, range 19 east.....	23,462.05
2	Township 4 north, range 20 east.....	23,010.15
3	Township 5 north, range 18 east.....	21,081.99
4	Township 5 north, range 19 east.....	21,516.08
5	Township 5 north, range 20 east.....	21,010.69
6	Township 5 north, range 21 east.....	23,056.23
7	Township 6 north, range 26 east.....	23,011.99
8	Township 6 north, range 27 east.....	23,036.31
9	Township 7 north, range 26 east.....	23,019.91
10	Township 7 north, range 27 east.....	23,000.90
11	Township 7 north, range 28 east.....	23,008.30
12	Township 7 north, range 29 east.....	22,988.10
13	Township 10 north, range 24 east.....	21,050.04
14	Township 10 north, range 25 east.....	23,080.26
15	Township 11 north, range 24 east.....	22,940.70
16	Township 11 north, range 25 east.....	22,966.55
17	Township 13 north, range 21 east.....	22,977.31
18	Township 14 north, range 1 west.....	23,053.31
19	Township 16 north, range 5 west, (section 21).....	640.00
20	Township 16 north, range 21 east.....	23,069.78
21	Township 17 north, range 5 west.....	10,420.93
22	Township 17 north, range 19 east.....	23,010.56
23	Township 17 north, range 20 east.....	22,992.71
24	Township 18 north, range 19 east.....	22,982.18
25	Township 18 north, range 20 east.....	22,998.17
26	Township 20 north, range 2 east.....	17,270.29
27	Township 29 north, range 5 east.....	19,633.60
Total .....		576,229.09
Number of acres previously surveyed .....		4,682,465.01
Total surveyed in the Territory .....		5,258,694.10

E. P. FERRY,

Surveyor General Washington Territory.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

F.—Showing amount of appropriation and surveys under contract payable therefrom for the fiscal year ending June 30, 1869.

No. of contract.	Name of deputy.	Estimated amount.	Amount paid on contracts completed.
99	Lewis P. Beach .....	\$4,200 00	\$4,198 63
100	Edward Giddings.....	4,464 00	4,457 79
101	Edwin Richardson.....	4,176 00	4,122 33
102	David F. Byles .....	750 00	610 40
103	Ezra M. Mecker.....	450 00	552 16
104	Simmons & Cook .....	2,400 00	2,399 66
105	Lewis P. Beach .....	750 00	1,160 16
Total amount, (estimated) .....		17,190 00	
Total amount expended as per accounts rendered .....			17,501 13
Amount in excess of appropriation .....			280 50

Balance unexpended last year, (1868) .....

Appropriation for fiscal year ending June 30, 1869.....

Total appropriation for 1869.....

E. P. FERRY,

Surveyor General Washington Territory.

SURVEYOR GENERAL'S OFFICE,  
Olympia, W. T., July 1, 1869.

G.—*Showing estimate of expenses incident to the survey of the public lands in Washington Territory for the fiscal year ending June 30, 1871.*

For salary of surveyor general.....	\$2,500
For salary of chief clerk.....	1,800
For salary of draughtsman.....	1,500
For salary of one assistant clerk.....	1,200
For salary of assistant draughtsman.....	1,400
For office rent, stationery, draughting instruments, fuel, messenger's wages, and other incidental expenses.....	2,400
	<hr/> \$10,800

## FIELD WORK.

For 24 miles meridian and standard lines, at an average cost of \$16 per mile.....	384
For 576 miles exterior township lines, at an average cost of \$14 per mile.....	8,064
For 4,620 miles of section and meander lines, at an average cost of \$12 per mile.....	55,440
	<hr/> 63,888
Total estimate.....	<hr/> 74,688

E. P. FERRY,  
*Surveyor General Washington Territory.*

SURVEYOR GENERAL'S OFFICE,  
*Olympia, W. T., July 5, 1869.*



No. 19.—*Statement of confirmed Indian pueblo grants and private land claims in New Mexico.*

## PUEBLO GRANTS.

Designation.	Name.	Confirinee.	Underact of—	Area in acres.
A	Jemez .....	Indians of the pueblo .....	Dec. 22, 1858, Statutes, v. 11, p. 374.	17, 510. 45
B	Acoma.....	do .....	do.....	Not surveyed.
C	San Juan .....	do .....	do.....	17, 544. 77
D	Picuris .....	do .....	do.....	17, 460. 69
E	San Felipe .....	do .....	do.....	34, 766. 86
F	Pecos .....	do .....	do.....	18, 763. 33
G	Cochiti .....	do .....	do.....	24, 256. 50
H	Santo Domingo .....	do .....	do.....	74, 743. 11
I	Taos .....	do .....	do.....	17, 360. 55
K	Santa Clara .....	do .....	do.....	17, 368. 52
L	Tesuque .....	do .....	do.....	17, 471. 12
M	San Ildefonso .....	do .....	do.....	17, 293. 64
N	Pojoaque .....	do .....	do.....	13, 520. 38
O	Zia .....	do .....	do.....	17, 514. 63
P	Sandia .....	do .....	do.....	24, 187. 29
Q	Isleta .....	do .....	do.....	110, 080. 31
R	Uambe.....	do .....	do.....	13, 586. 33
	Laguna*.....	do .....	June 21, 1860	Not surveyed.

\* Confirmed by 3d section act of 21st June, 1860, Statutes, vol. 12, p. 71, in connection with private claim No. 30.

## PRIVATE LAND CLAIMS.

Designation.	Name.	Confirmer.	Under act of—	Area in acres.
1	San Juan Bautista del Ojito del Rio de las Gallinas.	Preston Beek, jr. ....	June 21, 1860.	318,699.72
2	Town of Tomé. ....	Inhabitants of the town. ....	Dec. 22, 1858.	121,594.53
3	Tierra Amarilla. ....	Francisco Martinez <i>et al</i> . ....	June 21, 1860.	Not surveyed.
5*	Town of Casa Colorado.	Inhabitants of the town. ....	Dec. 22, 1858.	Do.
6	Brazito. ....	Legal representatives of Juan Antonio Garcia.	June 21, 1860.	Do.
7	Town of Tecolote. ....	Inhabitants of the town. ....	Dec. 22, 1858.	21,636.83
8	Las Frigos. ....	Legal representatives of Francisco Trajillo, Diego Padilla, and Bartolome Marquez.	June 21, 1860.	12,545.66
9	Junta de las Rios. ....	John Scolly, Guillermo Smith, Gregorio Trajillo, Augustin Duran, Santiago Giddings, and Francisco Romero.	June 21, 1860.	Not surveyed.
10	Nuestra Señora de la Luz	John Lamy, bishop of New Mexico. ....	June 21, 1860.	16,546.85
11	Town of Chilili. ....	Inhabitants of the town. ....	Dec. 22, 1858.	38,435.14
12	Agua Negra. ....	Antonio Sandoval. ....	June 21, 1860.	Not surveyed.
13	Town of Belen. ....	Inhabitants of the town. ....	Dec. 22, 1858.	194,663.75
14	San Pedro. ....	José Serafin Ramirez. ....	June 21, 1860.	35,911.63
15	.....	Charles Beaubien and Guadalupe Miranda.	June 21, 1860.	Not surveyed.
16†	.....	José Leandro Perca. ....	June 21, 1860.	Do.
18	Cañon de Pecos. ....	Legal representatives of Juan Estevan and legal representatives of Francisco Ortiz, jr., and Juan de Aguilar.	June 21, 1860.	Do.
16	Rancho of the pueblo of San Cristoval.	E. W. Eaton, assignee and legal representative of Domingo Fernandez and others.	June 21, 1860.	27,854.06
20	Town of Las Vegas. ....	Inhabitants of the town. ....	June 21, 1860.	496,446.96
†	Location No. 1. ....	Heirs of Luis Maria Cabeza de Baca, in lieu of "Las Vegas Grandes."	June 21, 1860.	Not surveyed.
+	Location No. 2. ....	do. ....	June 21, 1860.	99,229.39
21	Town of Tajique. ....	Inhabitants of the town. ....	June 21, 1860.	Not surveyed.
22	Town of Torreon. ....	do. ....	June 21, 1860.	Do.
23	Town of Manzano. ....	do. ....	June 21, 1860.	Do.
24	San Isidro. ....	Legal representatives of Antonio Armenta and Salvador Sandoval.	June 21, 1860.	Do.
25	Town of Cañon de San Diego.	Inhabitants of the town. ....	June 21, 1860.	Do.
27	Town of Las Trampas. ....	do. ....	June 21, 1860.	Do.
28	.....	Legal representatives of Sebastian Martin. ....	June 21, 1860.	Do.
29	Town of Anton Chico.	Inhabitants of the town. ....	June 21, 1860.	369,662.72
30	Rancho of Pagnate, rancho of El Rito, Gigante Cañon, and rancho of San Juan and Santa Ana.	Indians of the pueblo of Laguna. ....	June 21, 1860.	Not surveyed.
31	.....	Legal representatives of Vicente Duran y Armijo.	June 21, 1860.	Do.
32	Town of Mora. ....	Inhabitants of the town. ....	June 21, 1860.	Do.
33	Valverde and Fray Cristoval.	Heirs of Pedro Armendarces. ....	June 21, 1860.	Do.
34	.....	do. ....	June 21, 1860.	Do.
35	Bosque del Apache. ....	Antonio Sandoval. ....	June 21, 1860.	Do.
36	Town of Chamito. ....	Inhabitants of the town. ....	June 21, 1860.	Do.
37	Town of Tejon. ....	do. ....	June 21, 1860.	Do.
38	.....	Legal representatives of Pedro Sanchez. ....	June 21, 1860.	Do.
43	Ortiz mine. ....	Elisha Whittlesey, Abraham Rencher, Ferdinand W. Risque, Nathaniel M. Miller, Joseph F. Walker's representatives, Charles E. Sherman, and Andrew J. O'Bannon.	Mar. 1, 1861.	69,458.33
70	Cañon del Agua. ....	José Serafin Ramirez. ....	June 12, 1866.	3,501.21

\* The claim of Casa Colorado is numbered 29 in the act of confirmation, but in the corrected list of private claims, (see letter of surveyor general of January 12, 1858,) is numbered as above.

† The claim of E. W. Eaton is numbered 16 in the act of confirmation, but should have been numbered 19. It seems to have been accidentally omitted in the corrected list.

‡ The heirs of Luis Maria Cabeza de Baca, by the act of June 21, 1860, were granted, in lieu of "Las Vegas Grandes," which they claimed, the same amount of land contained in the Las Vegas town grant, to be located by them in square bodies, not exceeding five in number. The heirs of Baca have located said grant in five square bodies, viz: Nos. 1 and 2 in New Mexico, Nos. 3 and 5 in Arizona, and No. 4 in Colorado.

JOS. S. WILSON, *Commissioner*

DEPARTMENT OF THE INTERIOR,  
General Land Office, November 1, 1869

No. 20.—Statement showing the area of the several States and Territories containing public and the quantity of land which remained unsold and unap

No. 1.	No. 2.		No. 3.	No. 4.	No. 5.
States and Territories containing public land.	Areas of States and Territories containing public land.		Quantity sold.	Entered under the homestead law of May 20, 1862, and its supplements of 1864 and 1866.	Granted for military services.
	Square miles.	Acres.	Acres.	Acres.	Acres.
Ohio.....	39,964.00	25,576,960.00	12,805,971.03	5,968.68	1,817,425.99
Indiana.....	33,809.00	21,637,760.00	16,122,244.78	.....	1,311,956.65
Illinois.....	55,410.00	35,462,400.00	19,879,408.27	272.03	9,533,533.00
Missouri.....	65,350.00	41,824,000.00	22,924,661.21	1,122,889.17	6,807,642.89
Alabama.....	50,722.00	32,462,080.00	17,789,351.45	320,948.68	1,158,611.17
Mississippi.....	47,156.00	30,179,840.00	12,201,037.03	200,520.19	384,697.73
Louisiana.....	41,346.00	26,461,440.00	5,720,349.71	67,662.73	1,156,442.50
Michigan.....	56,451.00	36,123,640.00	12,381,774.87	1,330,527.09	3,732,106.78
Arkansas.....	52,198.00	33,406,720.00	8,235,726.57	432,865.06	2,258,146.92
Florida.....	59,268.00	37,931,520.00	1,832,431.49	303,399.54	464,782.04
Iowa.....	55,045.00	35,228,800.00	11,773,758.20	524,584.78	13,989,555.77
Wisconsin.....	53,924.00	34,511,360.00	10,043,685.78	939,937.76	6,214,482.82
California.....	188,981.00	120,947,840.00	2,925,668.80	427,988.02	479,612.00
Minnesota.....	83,531.00	53,459,840.00	2,255,884.10	2,829,091.51	5,820,459.00
Oregon.....	95,274.00	60,975,360.00	2,264,902.91	376,186.02	60,689.14
Kansas.....	81,318.00	52,043,520.00	285,029.73	1,016,590.68	4,098,725.95
Nevada.....	112,090.00	71,737,600.00	62,064.36	14,034.55	7,740.00
Nebraska.....	75,995.00	48,636,800.00	442,053.23	1,413,261.27	1,543,108.05
Washington Ter'y.....	69,994.00	44,796,160.00	300,530.80	292,120.84	44,793.63
New Mexico Ter'y.....	121,201.00	77,568,640.00	480.00	480.00	.....
Utah Territory.....	84,476.37	54,065,043.20	51,638.26	96,764.65	7,450.00
Dakota Territory.....	150,931.45	96,596,128.00	32,850.01	272,377.03	24,560.00
Colorado Territory.....	104,500.00	66,880,000.00	82,502.09	132,367.93	159,720.00
Montana Territory.....	143,776.00	92,016,640.00	9,335.96	7,632.23	320.00
Arizona Territory.....	113,916.00	72,906,240.00	.....	.....	.....
Idaho Territory.....	86,294.00	55,228,160.00	10,270.69	13,509.51	320.00
Wyoming Territory.....	97,882.92	62,645,068.80	.....	.....	.....
Indian Territory.....	68,991.00	44,154,240.00	.....	.....	.....
Alaska Territory.....	577,390.00	369,529,600.00	.....	.....	.....
Total.....	2,867,184.74	1,834,998,400.00	158,433,620.38	12,201,980.41	61,076,922.03

Column No. 5 shows the quantity of public land returned as actually located with military bounty-ary reserve in Ohio, nor the outstanding warrants not returned as located up to June 30, 1869.

Column No. 6 shows the quantity selected within their own limits, by States containing public lands, under said act to non-public land-holding States which had been located by the State assignees up to said act be made applicable to all the States.

Column No. 7 shows the quantity actually certified under grants for railroads, and not the whole ferred pursuant to the railroad grants by acts of Congress, with the grants for wagon roads, will be Column No. 8 shows the quantity embraced in approved swamp selections up to the 30th June, 1869, approvals. (See swamp tables Nos. 5 and 6.)

Column No. 9 shows the quantity granted for internal improvements under the act of September 4, in prior grants, to each State for internal improvements. In the case of Ohio and Indiana the prior received no land under the act of 1841. In the case of Illinois, Iowa, and Wisconsin, the quantities under the acts of 1842 and 1854; the quantity granted to Iowa for the improvement of the Des Moines improvement of the Fox and Wisconsin Rivers, under the act of 1843, and therefore exceed the quantity

Column No. 10 shows the quantity granted for university purposes, and the estimated quantity granted the Indian Territory nor Alaska being included.



*lands, the quantity of land disposed of by sale or otherwise in each up to the 30th June, 1869, appropriated at that date in the several States and Territories.*

No. 6.		No. 7.	No. 8.	No. 9.	No. 10.	
Granted for agricultural colleges—act of July 2, 1862.		Approved under grants in aid of railroads.	Approved swamp selections.	Quantity granted for internal improvements.	Donations and grants for schools and universities.	
Selected in place.	Located with scrip.				Schools.	Universities.
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
			25,640.71	1,243,001.77	704,488	69,120
			1,263,733.28	1,609,861.61	659,317	46,080
		2,595,053.00	1,489,040.01	533,382.73	985,066	46,080
244,384.51	202,579.55	1,715,435.00	4,330,757.99	500,000.00	1,199,139	46,080
		2,288,138.50	2,595.51	500,000.00	902,774	46,080
		908,680.29	3,068,642.31	500,000.00	837,584	46,080
		1,072,405.45	8,430,254.73	500,000.00	786,044	46,080
225,253.88	992,632.38	2,717,496.51	5,691,758.66	500,000.00	1,067,397	46,080
		1,793,167.10	7,283,763.13	500,000.00	886,460	46,080
		1,760,468.39	10,901,007.76	500,000.00	508,503	92,160
240,000.96	187,583.18	3,215,669.46	863,849.00	1,333,079.99	905,144	46,080
240,007.73	1,111,385.07	1,479,710.05	3,029,738.55	1,183,728.42	958,649	92,160
	733,780.41	161,892.56	769,430.15	500,000.00	6,719,324	46,080
119,852.17	668,438.52	2,510,283.64	725,034.13	500,000.00	2,969,980	46,080
	14,373.20			500,000.00	3,329,706	46,080
90,000.40	577,487.07	2,908.92		500,000.00	2,891,396	46,080
				500,000.00	3,985,428	46,080
11,504.96	987,676.03			500,000.00	2,702,044	46,080
	7,198.75				2,438,675	46,080
					4,309,368	46,080
					3,003,613	46,080
					5,366,451	
					3,715,555	
					5,112,035	
					4,050,350	
					3,068,231	
					3,450,281	
1,171,004.61	5,488,136.16	22,221,308.87	47,875,245.92	12,403,054.43	67,983,922	1,082,880

land warrants, and does not include the military scrip received as money, the area of the Virginia mill under the agricultural college act of July 2, 1862, and its supplements; also the quantity of scrip issued June 30, 1869, and not the quantity liable to pass under the act, which would be 9,510,000 acres, should

quantity which will inure under the grants, it being estimated that the aggregate which will be trans- equal to 185,890,794.67 acres. (See table No. 11.)

under the acts of 1849, 1850, and 1860, and not the quantity selected, the latter being in excess of the

1841, and specific grants prior thereto. The act of 1841 granted 500,000 acres, less the quantity embraced grants covered the quantity given in column 9, exceeding 500,000 acres; and therefore those States given in this column include the additional selections by Illinois for the Illinois and Michigan Canal, River, under the acts of 1846 and 1862, and joint resolution of 1861; also the grant to Wisconsin for the of 500,000 acres.

to the States and reserved in the organized Territories, respectively, for the support of schools, neither

No. 20.—Statement showing the area of the several States

No. 1.	No. 11.	No. 12.	No. 13.	No. 14.	No. 15.
States and Territories containing public land.	Located with Indian scrip.	Located with float scrip, under act March 17, 1862.	Estimated quantity granted for wagon roads.	Quantity granted for ship canal.	Salines.
	Acres.	Acres.	Acres.	Acres.	Acres.
Ohio .....					24, 216
Indiana .....					23, 040
Illinois .....					121, 629
Missouri .....		80. 00			46, 080
Alabama .....	7, 918. 83				23, 040
Mississippi .....	16, 402. 00				
Louisiana .....	78, 563. 24				
Michigan .....	400. 00	12, 896. 24	1, 718, 613	1, 250, 000	46, 080
Arkansas .....	275, 972. 64				46, 080
Florida .....					
Iowa .....	2, 200. 00	80. 00		200, 000	46, 080
Wisconsin .....	22, 891. 21	1, 680. 00	250, 000		
California .....	36, 385. 19	80. 00			
Minnesota .....	229, 814. 88	400. 00			46, 080
Oregon .....			1, 813, 600		46, 080
Kansas .....	640. 00				46, 080
Nevada .....	15, 156. 99				
Nebraska .....	1, 400. 00	80. 00			
Washington Territory .....					
New Mexico Territory .....					
Utah Territory .....					
Dakota Territory .....	9, 880. 00				
Colorado Territory .....	1, 200. 00				
Montana Territory .....					
Arizona Territory .....					
Idaho Territory .....					
Wyoming Territory .....					
Indian Territory .....					
Alaska Territory .....					
Total .....	698, 824. 98	15, 296. 24	3, 782, 213	1, 450, 000	514, 585

Column No. 12 shows the quantity located with scrip issued under the act of March 17, 1862, (Statutes, Ormigan and La Nana grants, in Louisiana.

Column No. 13, showing the quantity granted for salines, does not include the selections by the State

Column No. 21 shows the quantity embraced in confirmed private claims, so far as returns of surveys

DEPARTMENT OF THE INTERIOR, *General Land Office*, November 1, 1869.

\*Donations to actual settlers under the act of September 27, 1850, and supplemental acts.

and Territories containing public lands, &c.—Continued.

No. 16.	No. 17.	No. 18.	No. 19.	No. 20.	No. 21.	No. 22.
Seats of government and public buildings.	Granted to individuals and companies.	Granted for deaf and dumb asylums.	Reserved for benefit of Indians.	Reserved for companies, individuals, and corporations.	Confirmed private land claims.	Remaining unsold and unappropriated June 30, 1869.
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
.....	32, 141. 24	.....	16, 330. 73	8, 805, 976. 00	26, 459. 80	220. 00
2, 560	843. 44	.....	126, 220. 71	149, 102. 00	329, 880. 53	1, 920. 93
2, 560	954. 64	.....	41, 754. 59	.....	233, 334. 00	332. 73
2, 560	.....	.....	22, 587. 61	.....	1, 477, 993. 77	1, 181, 129. 30
1, 620	1, 981. 53	21, 949. 46	1, 542, 378. 83	.....	213, 386. 65	6, 581, 305. 40
1, 280	15, 965. 31	.....	† 6, 561, 608. 82	.....	688, 083. 25	4, 749, 259. 07
.....	8, 412. 98	.....	.....	.....	2, 075, 426. 29	6, 519, 798. 37
13, 200	4, 080. 00	.....	109, 300. 83	.....	126, 711. 25	4, 162, 330. 61
10, 600	139, 366. 25	2, 097. 43	.....	.....	118, 451. 12	11, 377, 943. 78
6, 240	52, 114. 00	20, 924. 22	227. 49	305. 75	3, 739, 789. 00	17, 349, 167. 32
.....	.....	.....	119, 183. 34	.....	.....	1, 978, 081. 41
6, 400	5, 705. 82	.....	.....	.....	36, 880. 99	8, 694, 316. 80
6, 400	.....	.....	.....	.....	6, 732, 599. 87	101, 403, 599. 00
6, 400	.....	.....	.....	.....	.....	34, 732, 032. 05
6, 400	*1, 738, 981. 48	.....	1, 040, 640. 00	.....	.....	51, 737, 739. 25
6, 400	.....	.....	.....	.....	.....	42, 482, 271. 85
25, 600	.....	.....	.....	.....	.....	67, 081, 496. 10
44, 800	.....	.....	.....	.....	.....	40, 944, 792. 46
.....	*239, 637. 02	.....	.....	.....	.....	41, 377, 123. 96
.....	.....	.....	661, 427. 00	.....	1, 846, 247. 00	70, 704, 558. 00
.....	.....	.....	2, 039, 040. 00	.....	.....	48, 820, 427. 29
.....	.....	.....	.....	.....	.....	90, 890, 000. 90
.....	.....	.....	.....	.....	.....	62, 788, 654. 00
.....	.....	.....	.....	.....	.....	86, 887, 316. 76
.....	.....	.....	.....	.....	.....	68, 855, 890. 00
.....	.....	.....	.....	.....	.....	52, 135, 828. 80
.....	.....	.....	.....	.....	.....	59, 164, 787. 80
.....	.....	.....	.....	.....	.....	44, 154, 240. 00
.....	.....	.....	.....	.....	.....	369, 529, 600. 00
146, 860	2, 240, 183. 71	44, 971. 11	13, 280, 609. 94	8, 955, 383. 75	17, 645, 243. 52	1, 396, 286, 163. 94

volume 12, page 371,) in satisfaction of claims against the United States for lands sold within the Las of Nebraska under the act of April 19, 1864, (Statutes, volume 13, page 49.) have been received, not embracing claims confirmed and not yet reported as surveyed.

JOS. S. WILSON, *Commissioner.*

†Including Chickasaw cession



No. 21.—*Historical and statistical table of the United States of North America.*

[NOTE.—The whole area of the United States, including water surface of lakes and rivers, is nearly equal to four million square miles, embracing the Russian purchase.]

The thirteen original States.	Area in square miles.	*Population—1860.
New Hampshire.....	9,280	326,073
Massachusetts.....	7,800	1,231,666
Rhode Island.....	1,306	174,620
Connecticut.....	4,750	460,147
New York.....	47,000	3,880,735
New Jersey.....	8,320	672,035
Pennsylvania.....	46,000	2,906,115
Delaware.....	2,129	112,216
Maryland.....	11,124	687,049
Virginia—East and West.....	61,352	1,596,318
North Carolina.....	50,704	992,622
South Carolina.....	34,000	703,708
Georgia.....	58,000	1,057,226

States admitted.	Act organizing Territory.	United States Statutes.		Act admitting State.	United States Statutes.		† Area in square miles.	* Population—1860.
		Vol.	Page.		Vol.	Page.		
Kentucky.....				Feb. 4, 1791	1	189	37,680	1,155,684
Vermont.....				Feb. 18, 1791	1	191	*10,212	315,698
Tennessee.....				June 1, 1796	1	491	45,600	1,109,801
Ohio.....	Ordinance of 1787			April 30, 1802	2	173	39,964	2,339,562
Louisiana.....	March 3, 1805	2	331	April 8, 1812	2	701	*41,346	708,002
Indiana.....	May 7, 1800	2	58	Dec. 11, 1816	3	399	33,809	1,350,428
Mississippi.....	April 7, 1798	1	549	Dec. 10, 1817	3	472	47,156	791,305
Illinois.....	Feb. 3, 1809	2	514	Dec. 3, 1818	3	536	*55,410	1,711,951
Alabama.....	March 3, 1817	3	371	Dec. 14, 1819	3	608	50,722	964,201
Maine.....				March 3, 1820	3	544	*35,000	628,279
Missouri.....	June 4, 1812	2	743	March 2, 1821	3	645	*65,350	1,182,012
Arkansas.....	March 2, 1819	3	493	June 15, 1836	5	50	52,198	435,450
Michigan.....	Jan. 11, 1805	2	309	Jan. 26, 1837	5	144	*56,451	749,113
Florida.....	Mar. 30, 1822	3	654	March 3, 1845	5	742	59,268	140,425
Iowa.....	June 12, 1838	5	235	March 3, 1845	5	742	55,045	674,948
Texas.....				Dec. 29, 1845	9	108	*274,356	604,215
Wisconsin.....	April 20, 1836	5	10	March 3, 1847	9	178	53,924	775,881
California.....				Sept. 9, 1850	9	452	*188,981	305,439
Minnesota.....	March 3, 1849	9	403	Feb. 26, 1857	11	166	83,531	173,855
Oregon.....	Aug. 14, 1848	9	323	Feb. 14, 1859	11	383	95,274	52,465
Kansas.....	May 30, 1854	10	277	Jan. 29, 1861	12	126	81,318	107,206
West Virginia.....				Dec. 31, 1862	12	633	23,000	.....
Nevada.....	March 2, 1861	12	209	March 21, 1864	13	30	*112,090	\$6,857
Colorado.....	Feb. 28, 1861	12	172				*104,500	\$10,507
Nebraska.....	May 30, 1854	10	277	March 1, 1867	13	47	75,995	\$34,277
								\$2,261
								28,841

Territories.	Act organizing Territory.	United States Statutes.		Area in square miles.	* Population.
		Vol.	Page.		
Wyoming.....	July 25, 1868	15	178	97,883	The estimated population of these Territories on January 1, 1865, as above indicated, was 360,000.
New Mexico.....	Sept. 9, 1850	9	446	121,201	
Utah.....	Sept. 9, 1850	9	453	†84,476	
Washington.....	March 2, 1853	10	172	69,994	
Dakota.....	March 2, 1861	12	239	†150,932	
Arizona.....	Feb. 24, 1863	12	664	**113,916	
Idaho.....	March 3, 1863	12	808	86,294	
Montana.....	May 26, 1864	13	85	143,776	
Indian.....				68,991	
District of Columbia.....	July 16, 1790	1	139	10 miles square	70,000
	March 3, 1791	1	214		
*** Northwestern America, purchased by treaty of May 28, 1867.	July 27, 1868	15	249	577,390	

## NOTES TO THE FOREGOING TABLE.

\*The total population of the United States in 1860 was, in round numbers, 31,500,000. In 1865 it is estimated that the population was 35,500,000, including the inhabitants of the Territories, estimated at 360,000 persons on January 1, 1865. At the present time, October 15, 1869, according to the most satisfactory estimate, it is about 40,000,000. In 1870, according to existing ratios, the population of this country will be over 42,250,000. At the end of the present century, 107,000,000.

†The areas of those States marked with a star are derived from geographical authorities, the public surveys not having been completely extended over them.

‡The present area of Nevada is 112,000 square miles, enlarged by adding one degree of longitude lying between the 37th and 42d degrees of north latitude, which was detached from the west part of Utah, and also northwestern part of Arizona Territory, per act of Congress approved May 5, 1866, (U. S. Laws, 1865 and 1866, page 43,) and assented to by the legislature of the State of Nevada, January 18, 1867.

§ White persons.

|| Indians.

¶The present area of Utah is 84,476 square miles, reduced from the former area of 88,056 square miles by incorporating one degree of longitude on the east side, between the 41st and 42d degrees of north latitude, with the Territory of Wyoming, per act of Congress approved July 25, 1868.

\*\*The present area of Arizona is 113,916 square miles, reduced from the former area of 126,141 square miles by an act of Congress approved May 5, 1866, detaching from the northwestern part of Arizona a tract of land equal to 12,225 square miles, and adding it to the State of Nevada. (U. S. Laws, 1865 and 1866, page 43.)

NEVADA.—Enabling act approved March 24, 1864. (Statutes, volume 13, page 30.) Duly admitted into the Union. President's proclamation No. 22, dated October 31, 1864. (Statutes, volume 13, page 749.)

COLORADO.—Enabling act approved March 21, 1863. (Statutes, volume 13, page 32.) Not yet admitted.

NEBRASKA.—Enabling act approved April 19, 1864. (Statutes, volume 13, page 47.) Duly admitted into the Union. See President's proclamation No. 9, dated March 1, 1867. (U. S. Laws, 1866 and 1867, page 4.)

That portion of the District of Columbia south of the Potomac River was retroceded to Virginia July 9, 1846. (Statutes, volume 9, page 35.)

\*\*\* BOUNDARIES.—Commencing at 54° 40' north latitude, ascending Portland channel to the mountains, following their summits to the 141° west longitude; thence north on this line to the Arctic Ocean, forming the eastern boundary. Starting from the Arctic Ocean west, the line descends Behring's Strait between the two islands of Krusenstern and Ratmanoff, to the parallel of 65° 30', and proceeds due north without limitation into the same Arctic Ocean. Beginning again at the same initial point, on the parallel of 65° 30', thence in a course southwest through Behring's Strait, between the island of St. Lawrence and Cape Chonkotski, to the 172° west longitude; and thence southwesterly through Behring's Sea, between the islands of Atton and Copper, to the meridian of 193° west longitude, leaving the prolonged group of the Aleutian Islands in the possessions now transferred to the United States, and making the western boundary of our country the dividing line between Asia and America.

††The present area of Dakota is 150,932 square miles, reduced from the former area of 240,597 square miles, by incorporating seven degrees of longitude of the western part, between the 41st and 45th degrees of north latitude, with the Territory of Wyoming, per act of Congress approved July 25, 1868.

‡‡The present area of Idaho is 86,294 square miles, reduced from the former area of 90,932 square miles, by incorporating one degree of longitude on the east side, between the 42d and 44th degrees of north latitude, with the Territory of Wyoming, per act of Congress approved July 25, 1868.

JOS. S. WILSON, *Commissioner*.

DEPARTMENT OF THE INTERIOR, *General Land Office*, November 1, 1869.

*Comparative statement adopted by the surveyor general's office at St. Louis, Missouri, of the land measures of the United States, and the French measures formerly used in the late province of Louisiana.*

Linear measure.		Superficial measure.	
FRENCH.	UNITED STATES.	FRENCH.	UNITED STATES.
72 feet are equal to.....	77 feet.	288 arpents are equal to 245 acres.	
6 perches are equal to.....	7 poles.		<i>Acres.</i>
	<i>Chains. links.</i>	‡1 arpent equal to.....	0.8507
‡1 perch equal to.....	0 29.166	2 arpents equal to.....	1.7014
2 perches equal to.....	0 58.333	3 arpents equal to.....	2.5521
3 perches equal to.....	0 87.5	4 arpents equal to.....	3.4028
4 perches equal to.....	1 16.661	5 arpents equal to.....	4.2535
5 perches equal to.....	1 45.833	6 arpents equal to.....	5.1042
6 perches equal to.....	1 75	7 arpents equal to.....	5.9549
7 perches equal to.....	2 04.166	8 arpents equal to.....	6.8056
8 perches equal to.....	2 33.333	9 arpents equal to.....	7.6563
9 perches equal to.....	2 62.5	10 arpents equal to.....	8.5069
10 perches, or 1 arpent lineal, equal to.	2 91.666	100 arpents equal to.....	85.0694
2 arpents equal to.....	5 83.333	1,000 arpents equal to.....	850.6944
3 arpents equal to.....	8 75	10,000 arpents equal to.....	8,506.9444
4 arpents equal to.....	11 66.666		<i>Acres.</i>
5 arpents equal to.....	14 58.333	‡1 arpent and 17.551 perches equal to.....	1
6 arpents equal to.....	17 50	2 arpents and 35.102 perches equal to.....	2
7 arpents equal to.....	20 41.666	3 arpents and 52.653 perches equal to.....	3
8 arpents equal to.....	23 33.333	4 arpents and 70.204 perches equal to.....	4
9 arpents equal to.....	26 25	5 arpents and 87.755 perches equal to.....	5
10 arpents equal to.....	29 16.666	7 arpents and 95.306 perches equal to.....	6
100 arpents equal to.....	291 66.666	8 arpents and 22.857 perches equal to.....	7
1,000 arpents equal to.....	2,916 66.666	9 arpents and 40.804 perches equal to.....	8
12 arpents equal to.....	35	10 arpents and 57.959 perches equal to.....	9
Side of a league square:		11 arpents and 75.510 perches equal to.....	10
84 arpents equal to.....	245	117 arpents and 55.102 perches equal to.....	100
Side of a mile square:		1,175 arpents and 51.050 perches equal to.....	1,000
‡27 arpents equal to 4 2-7 perches, or..	80	11,755 arpents and 10.204 perches equal to.....	10,000
12 arpents equal 35 chains, lineal.		A league square contains 7,056 arpents, or 6,062.50 acres.	
		‡‡A mile square contains 725 arpents and 32.64 perches, or 640 acres.	

\* 1 perch is equal to 29.166 links.

‡ 27 arpents are equal to 4 2-7 perches, equal to 80 chains.

‡ 1 arpent is equal to 85-100 of an acre and 7-10,000. § 1 arpent and 17.551 perches are equal to 1 acre.

‡‡ 725 arpents and 32.64 perches are equal to 640 acres.

*Table of land measures adopted in the republic of Mexico.*

Names of the measures.	Figures of the measures.	Length of the figures expressed in varas.			
			Breadth in varas.	Area in square varas.	Area in caballerias.
Sitio de ganado mayor.....	Square.....	5,000	5,000	25,000,000	41,023
Criadero de ganado mayor.....	Square.....	2,500	2,500	6,250,000	10,255
Sitio de ganado menor.....	Square.....	3,333 $\frac{1}{3}$	3,333 $\frac{1}{3}$	11,111,111 $\frac{1}{9}$	18,232
Criadero de ganado menor.....	Square.....	1,666 $\frac{2}{3}$	1,666 $\frac{2}{3}$	2,777,777 $\frac{2}{3}$	4,558
Caballeria de tierra.....	Right-angled parallelogram	1,104	552	609,408	1
Media caballeria.....	Square.....	552	552	304,704	$\frac{1}{2}$
Cuarto caballeria ó suerte de tierra	Right-angled parallelogram	552	276	152,352	$\frac{1}{4}$
Penega de sembraduro de maíz.....	Right-angled parallelogram	376	184	56,784	1-12
Sala para casa.....	Square.....	50	50	2,500	0.004
Fondo legal para pueblos.....	Square.....	1,200	1,200	1,440,000	2.036

The Mexican vara, which was the unit of measurement for length, is equal to thirty-three American inches.

The "sitio de ganado mayor," referred to in common parlance as California league, is recognized as equal to 4,438.68 acres.

JOS. S. WILSON, *Commissioner.*



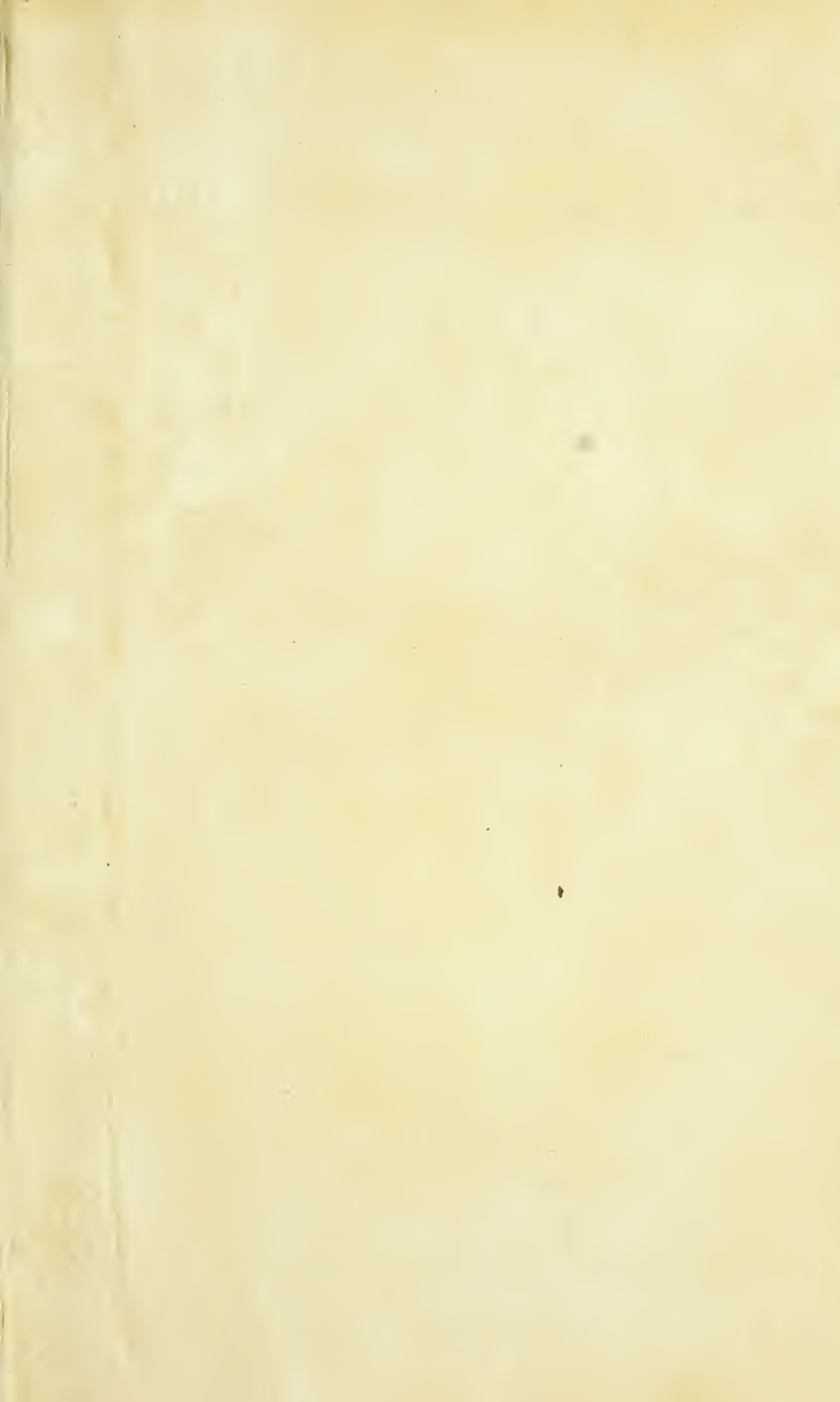












U.S. GOVERNMENT BINDER